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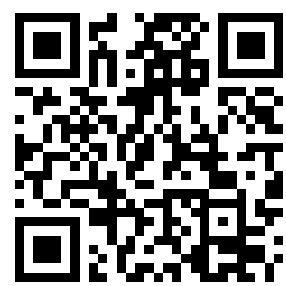

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CHINA SEA PILOT

VOLUME I

THE WEST SIDE OF THE CHINA SEA FROM TANJONG LOMPAT ON THE EASTERN SIDE OF PENINSULAR MALAYSIA TO ZHELANG YAN IN CHINA; KEPULAUAN ANAMBAS, HAINAN DAO, AND THE ISLANDS AND BANKS BORDERING THE MAIN ROUTE FROM SINGAPORE STRAIT TO HONG KONG

FOURTH EDITION
1978
(REVISED 1987)

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NP 30

CHINA SEA PILOT

VOLUME I

The west side of the China Sea from Tanjong Lompat on the eastern side of Peninsular Malaysia to Zhelang Yan in China; Kepulauan Anambas, Hainan Dao, and the islands and banks bordering the main route from Singapore Strait to Hong Kong.

FOURTH EDITION
1978
(Revised 1987)

PUBLISHED BY THE HYDROGRAPHER OF THE NAVY

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China Sea Pilot Vol III	1st Edition	1912
China Sea Pilot Vol III	2nd Edition	1923
China Sea Pilot Vol I	1st Edition	1937
China Sea Pilot Vol I	2nd Edition	1951
China Sea Pilot Vol 1	3rd Edition	1964
China Sea Pilot Vol I	4th Edition	1978

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Preface

The fourth edition of China Sea Pilot Vol I has been revised by Lieutenant Commander P J D Hayter RN and contains the latest information to the date given below.

This revised edition supersedes the Fourth Edition 1978 and Supplement No 4 1986 which are cancelled.

In addition to the sources of information consulted for the Fourth Edition the following sources other than Hydrographic Department publications and Ministry of Defence papers have been consulted:

British publications

Guide to Port Entry 1987/88
Ports of the World 1987
Lloyds Maritime Guide 1985
Shell—Port Facilities Information System

Chinese publication

Sea Pilot China Coast 1983

R O Morris
Rear Admiral
Hydrographer of the Navy

Hydrographic Department
Ministry of Defence
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England

24th November, 1987

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Preface

to the Fourth Edition 1978

The fourth edition of China Sea Pilot Vol 1 (NP 30) has been prepared by Lieutenant-Commander R A F Heap, OBE, DSC, Royal Navy, and contains the latest information received in the Hydrographic Department to the date given below. It supersedes the third edition (1964) and supplement No 8 (1975).

This edition contains information appertaining to the S coast of China from Mirs Bay to Cheland Chiao and Pratas Reef, which supersedes that at present published in China Sea Pilot Vol 3 (NP 32) third edition (1968) and supplement No 7 (1977).

Information on currents and meteorology has been revised by the Meteorological Office, Bracknell.

Information on radar ranges has been supplied by the General Council of British Shipping, London.

The following sources of information other than Hydrographic Department Publications and Ministry of Defence papers have been consulted.

French Publications:
Instructions Nautique—Asie du Sud-Est 1972 Serie K Vol IV
(Fascicule No 2 des corrections—1976).

Thailand Publications:
Geographical names on Thai Nautical charts.

United States Publications:
United States H O Publication No 93. Sailing Directions for Western shores of South China Sea (Change No 1 of 18th March, 1978).
United States H O Publication No 157. Sailing Directions for Coasts of Korea and China (Change No 1 of 4th December, 1976).

Other publications:
Statesman Year Book (1978).
Ports of the World (1978).
Guide to Port Entry 1977–78.
Ports, Dues, Charges and Accommodation 1977–78.
Shell Guide.
Hong Kong 1978 (Government Information Services).
Departmental Report 1976 (Director of Marine, Hong Kong).

Charts:
French, Thai, United States and Chinese.

D W Haslam
Rear-Admiral
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Hydrographic Department
Ministry of Defence
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Somerset
England

1st September, 1978

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EXPLANATORY NOTES

Admiralty Sailing Directions amplify charted detail and contain information needed for safe navigation which is not available from Admiralty charts, or other hydrographic publications. They are intended to be read in conjunction with the charts quoted in the text.

Sailing Directions are kept up to date by supplements published at intervals of 1½ to 2 years, each new supplement cancelling the previous one. In addition important corrections which cannot await the next supplement are published in Section IV of the weekly editions of *Admiralty Notices to Mariners*. A list of such corrections and notices in force is published in the last weekly edition for each month. Those still in force at the end of the year are reprinted in the *Annual Summary of Admiralty Notices to Mariners*.

This volume should not be used without reference to the latest supplement and Section IV of the weekly editions of Admiralty Notices to Mariners.

References to hydrographic and other publications

The Mariner's Handbook gives general information affecting navigation and is complementary to this volume.

Ocean Passages for the World and *Routeing Charts* contain ocean routeing information and should be consulted for other than coastal passages.

Admiralty List of Lights should be consulted for details of lights, lanbys and fog signals, as these are not fully described in this volume.

Admiralty List of Radio Signals should be consulted for information relating to coast and port radio stations, radio details of pilotage services, radiobeacons and direction finding stations, meteorological services and radio navigational aids, as these are only referred to briefly in this volume.

Annual Summary of Admiralty Notices to Mariners contains in addition to the temporary and preliminary notices, and corrections and notices affecting Sailing Directions, a number of notices giving information of a permanent nature covering radio messages and navigational warnings, distress and rescue at sea and exercise areas.

The International Code of Signals should be consulted for details of distress and life-saving signals, international ice-breaker signals as well as international flag signals.

Remarks on subject matter

Buoys are generally described in detail only when they have special navigational significance, or where the scale of the chart is too small to show all the details clearly.

Chart references in the text normally refer to the largest scale Admiralty chart but occasionally a smaller scale chart may be quoted where its use is more appropriate.

Firing, practice and exercise areas. Except for submarine exercise areas, details of firing, practice and exercise areas are not mentioned in Sailing Directions, but signals and buoys used in connection with these areas are sometimes mentioned if significant for navigation. Attention is invited to the Annual Notice to Mariners on this subject.

Names have been taken from the most authoritative source. When an obsolete name still appears on the chart, it is given in brackets following the proper name at the principal description of the feature in the text and where the name is first mentioned.

Tidal information relating to the daily vertical movements of the water is not given; for this *Admiralty Tide Tables* should be consulted. Changes in water level of an abnormal nature are mentioned.

Wreck information is included where drying or below-water wrecks are relatively permanent features having significance for navigation or anchoring.

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Units and terminology used in this volume

Latitude and Longitude given in brackets are approximate and are taken from the chart quoted.

Bearings and directions are referred to the true compass and when given in degrees are reckoned clockwise from 000° (North) to 359°.
Bearings used for positioning are given from the reference object.
Bearings of objects, alignments and light sectors are given as seen from the vessel.
Courses always refer to the course to be made good over the ground.

Winds are described by the direction from which they blow.

Tidal streams and currents are described by the direction towards which they flow.

Distances are expressed in sea miles of 60 to a degree of latitude and sub-divided into cables of one tenth of a sea mile.

Depths are given below chart datum, except where otherwise stated.

Heights of objects refer to the height of the structure above the ground and are invariably expressed as "... m in height".

Elevations, as distinct from heights, are given above Mean High Water Springs or Mean Higher High Water whichever is quoted in *Admiralty Tide Tables*, and expressed as, "an elevation of ... m". However the elevation of natural features such as hills may alternatively be expressed as "... m high" since in this case there can be no confusion between elevation and height.

Metric units are used for all measurements of depths, heights and short distances, but where feet/fathoms charts are referred to, these latter units are given in brackets after the metric values for depths and heights shown on the chart.

Time is expressed in the four-figure notation beginning at midnight and is given in local time unless otherwise stated. Details of local time kept will be found in *Admiralty List of Radio Signals*.

Bands is the word used to indicate horizontal marking.

Stripes is the word used to indicate markings which are vertical, unless stated to be diagonal.

Conspicuous objects are natural and artificial marks which are outstanding, easily identifiable and clearly visible to the mariner over a large area of sea in varying conditions of light. If the scale is large enough they will normally be shown on the chart in bold capitals and may be marked "conspic".

Prominent objects are those which are easily identifiable, but do not justify being classified as conspicuous.

Offshore, off-lying and outlying are terms used to indicate position and normally refer to zones 10 miles, 10 to 30 miles and greater than 30 miles from the coastline respectively.

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ABBREVIATIONS

The following abbreviations are used in the text.

Units

°C	degrees Celsius
dwt	deadweight tonnage
fm	fathom(s)
ft	foot (feet)
grt	gross register tonnage
hp	horse power
kHz	kilohertz
km	kilometre(s)
kn	knot(s)
kw	kilowatt(s)
m	metre(s)
mb	millibar(s)
MHz	megahertz
mm	millimetre(s)
MW	megawatt(s)
No	ordinal number
nrt	nett register tonnage

Directions

N	north (northerly, northward, northern, northernmost)
NNE	north-north-east
NE	north-east
ENE	east-north-east
E	east
ESE	east-south-east
SE	south-east
SSE	south-south-east
S	south
SSW	south-south-west
SW	south-west
WSW	west-south-west
W	west
WNW	west-north-west
NW	north-west
NNW	north-north-west

Times

ETA	estimated time of arrival
ETD	estimated time of departure
GMT	Greenwich Mean Time
UT	Universal Time
UTC	Co-ordinated Universal Time

Radio

DF	direction finding
RT	radio telephony
WT	radio (wireless) telegraphy
LF	low frequency
MF	medium frequency
HF	high frequency
VHF	very high frequency
UHF	ultra high frequency
Navtex	Navigational Telex System

Vessels and cargo

Aux Y	Auxiliary Yacht
HMS	Her (His) Majesty's Ship
MV	Motor Vessel
MY	Motor Yacht
RMS	Royal Mail Ship
SS	Steamship
LASH	Lighter Aboard Ship
LNG	Liquefied Natural Gas
LPG	Liquefied Petroleum Gas
POL	Petroleum, Oil and Lubricants
Ro-Ro	Roll-on, Roll-off
ULCC	Ultra Large Crude Carrier
VLCC	Very Large Crude Carrier

Tides

HW	High Water
LW	Low Water
MSL	Mean Sea Level
MHWS	Mean High Water Springs
MHWN	Mean High Water Neaps
MHHW	Mean Higher High Water
MHW	Mean High Water
MLHW	Mean Lower High Water
MLWS	Mean Low Water Springs
MLWN	Mean Low Water Neaps
MLLW	Mean Lower Low Water
MHLW	Mean Higher Low Water
HAT	Highest Astronomical Tide
LAT	Lowest Astronomical Tide

Navigation

ODAS	Ocean Data Acquisition System
SBM	Single buoy mooring
SPM	Single point mooring
Satnav	Satellite navigation
Lanby	Large automatic navigation buoy
TSS	Traffic Separation Scheme

Organizations

IALA	International Association of Lighthouse Authorities
IHO	International Hydrographic Organization
IMO	International Maritime Organization
NATO	North Atlantic Treaty Organization
RN	Royal Navy

Rescue and distress

AMVER	Automated Mutual Assistance Vessel Rescue System
SAR	Search and Rescue

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GLOSSARIES

Words found on Charts and in Sailing Directions

INDONESIAN
(See also Malay Glossary)

Indonesian	*English*
batu	rock, island
besar	great, large
darat	landward
gunung	mountain
kampung	village
karang	coral reef
kepulauan	group of islands
ketjil	small, little
laut	seaward
selat	strait, channel
sungai	river
tanjung	point, cape
teluk	cove, bay
tokong	reef, sunken bank

Numerals	
nol	0
satu	1
dua	2
tiga	3
empat	4
lima	5
enam	6
tujuh	7
delapan	8
sembilan	9
sepuluh	10
sebelas	11
duabelas	12 etc
duapuluh	20
duapuluh satu	21 etc
seratus	100
dua ratus	200 etc
seribu	1000
dua ribu	2000 etc
tiga ribu, tujuh ratus, limapuluh, enam	3756

MALAY

Malay	*English*
ayer	stream
alangan	bar
anak ayer	small stream
api api	type of mangrove
arus	current
ayer masin	salt water
bagan	landing place
baharu	new
bandar	port, trading town
barat	west
batang	river
batu	rock, stone
bender	port, trading town
besar	large, great
beting	shoal, bank, sand
biru	blue
bukit	hill, height
burong	bird
busong	islet, sandbank
changkat	hill, shoal
chetak	shallow
dalam	deep, depth, inside
danau	lake
darat	land, the interior
gelong	channel over a bar
gili	islet, rock
gunong	mountain
gusong	shoal, reef
hijau	green
hitam	black, dark
hutan	jungle, forest
jalan	road
jambatan	mole, jetty, bridge, gangway
jeram	rapids
kaler	north
kali	river
kampong	village
karang	coral, reef
kechil	small
keramat	shrine
kering	dry
kidul	south
kota	fort, fortified town
kuala	mouth of a river
kubang	water hole
kulon	west
kuning	yellow
labuhan	anchorage, harbour
lama	old
larangan	prohibited
laut	sea
lebar	wide, broad
lor	north
lumpur	mud
malang	rock, reef, shoal
mas	golden
mendara	minaret, watch-tower
merah	red
muara	mouth of a river
napu	reef

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negeri ..... town, state
nusa ..... island

padang ..... open space
panchang ..... pole, stake, pile
pangkalan ..... landing place
panjang ..... long
pantai ..... coast, seaboard, beach
parit ..... ditch, stream
pasanggrahan ..... Government rest-house
pasir ..... sand, sandbank, beach
paya ..... marsh, swamp
pekan ..... town, market
pelabuhan ..... anchorage, port
perhentian ..... railway station
perigi ..... well, spring
pisang ..... banana
pohon, pokok ..... tree
ponchak ..... summit, peak
praja ..... town
prau ..... boat, ship
pulau ..... island
pulau-pulau ..... group of islands
pura ..... city, town
puteh ..... white

ras ..... head
rawa ..... marshy ground
rawang ..... swamp
rendah ..... low
riam ..... waterfall
rimba ..... virgin jungle
rumah ..... house

sawang ..... narrows, strait
selat ..... strait, channel, narrows
selatan ..... south
sumber ..... spring of water
sumur ..... well
sungai ..... river

taka, takat ..... shoal, reef, rock
tanah ..... land, country
tanjong ..... cape, headland, promontory
tasek, tasik ..... lake
telok ..... bay, bight, bend of a river
tenang ..... calm, smooth
tepi laut ..... coast, seaboard
terumbu ..... dangerous, hidden shoal, reef which dries
terusan ..... connecting channel
timor ..... east
tinggi ..... high, height, lofty
tinjau ..... look-out
titiyan ..... mole, jetty, footbridge
tohor ..... shallow
tokong ..... rocky treeless islet, large rock
tua ..... old
tukun ..... sunken rock

utara ..... north

wai, waj ..... stream, creek
wetan ..... east

Numerals
satu 1
dua 2
tiga 3
empat 4
lima 5
enam 6
tujoh 7
delapan 8
sembilan 9
sa-puloh 10
sa-belas 11
dua-belas ..... 12 etc
dua-puloh 20
dua-puloh-satu ..... 21 etc
se-ratus 100
dua-ratus ..... 200 etc
sa-ribu 1000
dua-ribu 2000
enam-ribu lima-ratus empat-puloh tiga 6543

THAI

Thai — *English*
akhan ..... building
ao ..... gulf
ao kwan ..... bay

bot ..... church

chawak pak nam ..... estuary
chom nam ..... submerged
chong ..... channel
chong khaep ..... strait
chong kwat laeo ..... swept channel
chong thang rua doen ..... pass, passage

dan truat rok ..... quarantine
din mao ..... clay

fai ..... light
fai nam ..... leading light

ham ..... prohibited
hen dai chat ..... conspicuous
hin pakarang ..... coral
hin phut ..... reef
hup khao ..... valley

keben ..... cable
khao ..... hill, mountain
khap samut ..... peninsula
khlon ..... mud
khlon rim thale ..... creek
khlong ..... canal
khon ..... spar
khot ..... shoal
khot hin ..... rock
khruang mai bon yot ..... topmark
khwa mu ..... starboard hand
khwam-luk ..... depth
khwam-sung ..... height
klom ..... spherical
ko ..... island
ko lek ..... islet
krachom ..... beacon
krapong ..... can
krasae nam ..... current
kruat ..... gravel
kruat kon yai ..... shingle
kruay ..... conical

laem (hlaem) ..... headland
laem yai ..... cape
lamthan ..... stream
lek ..... small

mae nam ..... river
mai lek ..... number
met ..... metre
mu ban ..... village
mu ko ..... archipelago
muang ..... town
muang tha ..... port

naew hin phut ..... ridge
nai ..... inner
nakhon ..... city
nam khun ..... flood
nam long ..... ebb

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nam khun-long ..... tide
noen ..... hill
nok ..... outer
nok wit ..... whistle

pa mai ..... woodland, forest
pan chan ..... crane
phun thi antarai ..... foul ground
phun thi ham ..... prohibited area
phun thi khut ..... dredged area
plong fai ..... chimney
pluak hoi ..... shells
praphakhan ..... lighthouse
pratu nam ..... lock

radap nam ..... tide
radap sung ..... elevation
rakhang ..... bell
rong ..... channel
rua ap pang ..... wreck
rua chuay chiwit ..... lifeboat

sai ..... sand
sai mu ..... port hand
sairen ..... siren
sanyan mok ..... fog signal
sao phuk rua ..... dolphin
saphan ..... bridge
saphan thiap rua ..... jetty
si dam ..... black
si daeng ..... red
si khao ..... white
si khiao ..... green
si luang ..... yellow
si nam ngoen ..... blue

tha rua ..... harbour
tha rua kham fak ..... ferry
tha thiap rua ..... pier
tha thiap rua yai ..... wharf
thang khao ..... entrance
thi chot rua yai ..... berth
thia thot samo ..... anchorage
thi tun ..... bank
thit nua ..... north
thit tai ..... south
thit tawan ok ..... east
thit tawan tok ..... west
thun ..... buoy
thun fai ..... light-buoy
thun phuk rua ..... mooring buoy

u loi ..... floating dock
u rua ..... dock
u to rua ..... shipyard

wa ..... fathom
wat ..... temple

yai ..... great
yot laem ..... peak
yot sung khong laem ..... promontory

Numerals
sun 0
nung 1
song 2
sam 3
si 4
ha 5
hok 6
chet 7
paet 8
kao 9
sip 10
sip et 11
sip song ..... 12 etc
yisip 20
yisip et 21
yisip song ..... 22 etc
samsip 30
sisip 40
hasip 50
hoksip 60
chetsip 70
paetsip 80
kaosip 90
nungroi 100
songroi 200
samroi ..... 300 etc
nungphan 1000
songphan ..... 2000 etc
siphan, hokroi, hasip et 4651

CAMBODIAN

Cambodian — *English*
banteay ..... citadel, fort
boeng ..... lake

chhung ..... bay, creek
chrouy ..... cape, point
chrung ..... cape, point

dac ..... river

kampong ..... village on river bank
kaoh ..... island
khum ..... commune, village
kompul ..... summit
koy ..... custom house
krong ..... stream

moat ..... mouth, estuary

o ..... stream

phnum ..... hill, mountain
phumi ..... village
poulu ..... island
prasap ..... confluence
prasat ..... tower
prek ..... stream

srok ..... canton
stoeng ..... river, stream

tahi (keng) ..... rapids
tbong ..... peak
tik ..... water
tonle ..... river, lake
trep ..... floating island of reeds

Numerals
muy 1
pil 2
bei 3
buon 4
pram 5
pram muy 6
pram pil 7
pram bei 8
pram buon 9
dap 10
dap muy (or muy ton dap) 11 etc
muyphe 20
muyphe muy ..... 21 etc
sam sep 30
se sep 40
ha sep 50
hok sep 60
chet sep 70
pet sep 80
kao sep 90
muy roy 100
pil roy ..... 200 etc
muy poan 1000
bei poan pram, buon roy se sep, pram pil 3947

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VIETNAMESE

Vietnamese	*English*
ap	hamlet
ban dao	peninsula
ben	bay
ben tau	seaport, harbour
bien	sea, lake
chu	hill, mountain
con	island
cua	mouth of river
cu lao	island
dao	island
dar	stream
duong	road, stream
giang	large river
giong	hill
hon	small island
kinh	strait, canal
lang	village
mui	cape, point
muong	irrigation canal
nui	hill, mountain
nuoc	stream
pho	stream
poulo	island
quan do	archipelago
rach	stream
ran	breaker, reef
ranh	canal
sa	sandbank
se	stream
song	stream, channel
vam	river mouth
vinh	bay, gulf
vung	bay
xa	village
xom	hamlet
xeo	stream
xuyen	river

Numerals

so khong	0
mot	1
hai	2
ba	3
bon	4
nam	5
sau	6
bay	7
tam	8
chin	9
muoi	10
muoi mot	11
hai muoi	20
hai muoi mot	21
tram	100
hai tram	200
nghin	1000

N.B. All compound numbers form regularly on this pattern up to 9999

FRENCH

French	*English*
aiguille	needle
anse	bay, creek
avant port	outer port
baie	bay, gulf
banc	bank, sandbank
barre	bar
basse	shoal
bassin	basin, dock
bouche	mouth of a river
cap	cape, headland
chenal	channel
colline	hill
côte	coast
écueil	rock, breaker
entrée	entrance, mouth of a river
escarpé	bluff
est	east
étang	lake, pond
falaise	cliff
fond	bottom
fosse	ditch, a deep
golfe	gulf
goulet	narrow entrance
grand, e	great, large
gros	great, large
haut-fond	a shoal
île	island, isle
ilot	islet
jaune	yellow
lac	lake
marais	swamp, marsh
mare	pond
môle	mole, pier
mont, morne	mountain
musoir	mole (or pier) head
noire, e	black
nord	north
ouest	west
passe	channel, pass
petit, e	small
pic	peak
pierre	stone
piton	mountain peak
plage	shore, beach
plateau	table-land, or flat below water
pointe	point
port	port, harbour
presqu'île	peninsula
quai	quay, wharf
rade	road, roadstead
récif	reef
rivière	river
roche, rocher	rock
ruisseau	rivulet
sable	sand
salines	salt water lagoons, salt works
sud	south
tour	tower
vert, e	green
vieil, vieille, vieux	old, ancient
village	village
ville	town

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CHINESE

(This list includes words in both Wade-Giles and Pinyin forms of spelling, see 1.71)

Chinese	*English*
an	embankment, bank, shore, coast, cliff
an-chiao	submerged rocks, reef
anjiao	sunken rock
ansha	shoal, sandbank
ao	bay, cove, inlet, dock
bandao	peninsula
bei	north
bi	nose
bodi	anchorage
bu	village
cao	channel
cha	lock, dam, flood barrier
chau	*see* chou
chao	bog, marsh
chen	town, market town
ch'eng	city, walled town
chi	obstruction, ledges in a river
ch'i	stream, river, head, cape, point, mountain, seven
chia	cape, bluff
ch'ia	customs barrier
chiang	river, shoal, harbour, port, inlet, channel, sound
chiang-tao	channel, strait, sound
chiao	creek, rock, reef, shoal, islet, cape, point
ch'iao	bridge
chien	mountain, peak
ch'ien	shallow, shoal
ch'ien-lai	bank, shoal
ch'ien-t'an	bank, shoal
ch'ien-tui	bank
ch'ih	pond
chih-chiang-tao	reach
ching	capital city, isthmus, ford, ferry
chiu	nine
cho	*see* chou
chou	island, bank
chow	*see* chou
ch'uan	stream, river
chuang	village
chüeh	cape, point
chung	middle, centre
ch'ün-tao	archipelago, group of islands
chu-tao	archipelago, group of islands
cun	village
da	big, great
dao	island
daozi	island
diantan	patches
ding	top
dizui	landspit
dong	east
erh	two
fangbodi	breakwater
feng	mountain, peak
fou	port
fu	province capital
gang	port, harbour, mound, hill
gangchi	basin
gangkou	port, harbour
gaojião	promontory
guanchang	square
hai	sea, gulf
haibin	beach
hai-ching	strait, channel
haidi	sea wall
hai-hsia	strait, channel
haikou	sea mouth
hai-k'ou	channel entrance
hai-pin	seashore, beach
haiqu	water area
hai-wan	bay, gulf
haixia	strait
hangdao	fairway
hang-lu	fairway
hangmen	pass navigable to ships
he	river
hei	black
ho	river, waterway
hou	rear
hsi	west, mountain, stream
hsia	strait, gorge, lower
hsiang	rural area, village
hsiao	small
hsien	district, district capital
hisin	new
hsü	island
hsuan	eddies
hu	lake
huang	yellow
hung	red
ji	village, town
jia	headland, point
jian	top, peak
jiang	river
jiao	reef
jião	point, cape
jie	street
jiu	old
kan	dry, harbour, port
kan	*see* chiang
kang	mound, hill
kao	high
kao-chiao	promontory
kao-jüan	plateau
kau	*see* k'ou
kiang	*see* chiang
kiao	*see* chiao
kou or k'ou	mouth, river entrance, port, inlet, ravine, gully
kow	*see* kou
ku	valley
ku-k'ou	ravine
kuan	barrier, customs
kuo	country, kingdom
lan	reef, blue
lanjiangsha	bar
lao	old
li	gravel, shingle, inner
liedao	group of islands
lieh-tao	*see* liedao
lieh-yen	group of rocks
lin	forest
ling	ridge, mountain, mountain range
liu	stream, current, six
lu	road
man	*see* men
maodi	anchorage
mao-ti	*see* maodi
men	gate, pass, channel, strait
miao	temple
mu	trees, wood, grave
mun	*see* men
nan	south
nei	inner
nei-ao	basin
n'i	mud
o	*see* ao
ou	*see* ao
pa	embankment, quay, eight
pai	reef, white
pang	*see* peng
pan-tao	*see* bandao
pao	town, village, rampart

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p'ao-t'ai ..... port
pei ..... *see* bei
peng ..... creek
pi ..... cape, nose
piao ..... rock, islet
p'ing-chou ..... level shoals
p'o ..... arm of the sea
po-ti ..... roadstead, anchorage
pu ..... village
p'u ..... inlet, creek, village, town, rampart

qian ..... front
qiantan ..... shoal, bank
qu ..... area
qundao ..... archipelago
qunjiao ..... reefs

san ..... three
san ..... *see* shan
san-chiao-chou ..... delta
seu ..... *see* hsu
sha ..... sandbank, islet, sand, low sandy point
sha-chiao ..... sandspit
sha-ch'iu ..... sand-dune
shan ..... mountain, hill, island
shang ..... upper
shan-hu ..... coral
shan-hu-chiao ..... coral reef
shan-mo ..... mountain range
shan-sha ..... bar, sand-bar
shan-tien ..... mountain summit
shao ..... small, few
shatan ..... sandy shoal, sand flats
sha-tsui ..... sandspit
sha-tui ..... sandbank
shazhou ..... sandbank
shazui ..... sandspit
shen ..... deep
sheng ..... province
shi ..... rock
shih ..... city, market, store, rock, hill
shih-t'ai ..... ridge of rocks
shih-ti ..... swamp
shu ..... tree
shu-lin ..... forest
shui ..... water, river
shuidao ..... channel
shui-lu ..... channel, passage
shui-tao ..... *see* shuidao
si ..... temple
ssu ..... monastery, temple, four
su ..... *see* hsu

ta ..... tower, great, large
t'a ..... pagoda
tai ..... *see* tui
tan ..... flat
t'an ..... banks, flats, rapids, lake
tang ..... village
t'ang ..... embankment, pond
tao ..... island, road, paddy field
t'ao ..... bay
tao-tzu ..... islet
tau ..... *see* tao
tautze ..... *see* t'o-tzu
ti ..... embankment, dyke, earth, ground, place, low, bottom
t'ien ..... arable land, field
ting ..... summit, mountain
t'o ..... stone, rocky eminence
t'o-tzu ..... stone, rocky knob, islet
tou or t'ou ..... cape, headland, point
t'ou-tzu ..... cape, headland, point
tow ..... *see* tou
tsui ..... cape, point, spit
tsui-tzu ..... cape, point, spit
tsui-wei ..... cape, point, spit
ts'un ..... village
tu ..... ferry, ford
tuan ..... village
tui ..... mound, bank
tui-tsui ..... bank, spit
tun ..... village
tung ..... east

wa ..... swamp
wai ..... outer
wan ..... bay, gulf, bend in river
wei ..... headland, tail, walled town

xi ..... west, creek
xia ..... strait
xian ..... county
xiao ..... small, little
xin ..... new
xu ..... village

yai ..... cliff
yan ..... rock
yang ..... ocean, enclosed portion of the sea, channel
yeh ..... moorland
yen ..... embankment, dyke, rock, reef, cliff
yen't'an ..... salt pan
yen-tien ..... salt pan
yen-ch'ang ..... salt works
yu or yü ..... island, islet
yunhe ..... canal
yun-ho ..... canal

zhai ..... village
zhang ..... mount
zhen ..... town
zhong ..... middle, central
zhou ..... shoal, islet
zhuang ..... village
zui ..... point, spit
zeizi ..... point
zulangdi ..... breakwater

HONG KONG

Hong Kong	*English*
chau	island
ha	lower
hang	stream
hau	inlet
hoi	bay, harbour, strait
hoi hap	channel, strait
kiu	bridge
kok	headland
lo	old
mun	channel, passage
nam	south
O	harbour
pai	rock, reef
pak	north
sai	west
san	new
shan	mountain, island
shek	stone
sheung	upper
shui	water
siu	small
tai	big, great, large
tau	cape, point

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tin ..... fields (paddy)
tsuen ..... village
tsui ..... spit of land
tung ..... east

uk ..... grave

wai ..... walled village
wan ..... bay

yuen ..... garden, orchard

Numerals
ling 0
yat 1
yi 2
sam 3
sz 4
ng 5
luk 6
tsat 7
pat 8
kau 9
shap 10
shap-yat ..... 11 etc
yi-shap 20
yi-shap-yat ..... 21 etc
yat-pak 100
yat-pak-ling-yat ..... 100 etc
pak-yat 110
pak-yi ..... 120 etc
yi-pak 200
yat-tsin 1000
yi-tsin ..... 2000 etc
luk-tsin, ng-pak, sz-shap-sam 6543

PORTUGUESE

Portuguese	*English*
a, as	the (fem.)
aldeia	hamlet
alto, s	
altura, s	height, heights
amarelo	yellow
ancorduoro	anchorage
angra	inlet, bight, cove
aquário	aquarium
areia	sand
arquipé lago	archipelago
atalaia	lookout
azul	blue
bacia	basin
baia	bay
bairro	district (of a town), ward
baixio	
baixo, a	shallow, shoal
baliza	beacon
banco	bank
barra	bar
basílica	basilica
bateria	battery
boca	mouth, entrance
branco, a	white
cabeço, a	summit or a hill or shoal
cabo	cape
cais	quay, wharf
cala	creek, channel, narrow inlet
calheta	inlet
canal	channel
capela	chapel
carreira	narrow channel, slipway
casa	house
casal	farmhouse
castelo	castle
catedral	cathedral
cemitério	cemetery
chalé	chalet
cidade	city, large town
cidadela	citadel
cinzento	grey
colina	hill, hillock
colónia	colony, settlement
concha	cove
convento	convent
coroa	sandy head
cruz	cross
de dentro (adj.)	inner
desembarcadouro	landing
doca	dock
duna	dune
enseada	bay, bright, cover
entrada	fairway
ermida	hermitage
espigão	projecting point
esporão	groyne
estacada	pier, projecting wharf, mole
estaleiro	shipyard
este, leste	east, eastern
esteiro	creek
estreito	strait, narrows
estuário	estuary
fábrica	factory
farilhão	stack, steep sided rock, islet
de fora	outer
fortaleza	fortress
forte	fort
foz	mouth of a river
fundeadouro	anchorage
grande	large
golfo	gulf
hotel	hotel
igreja	church
ilha	island
ilhéu, ilhota	islet
istmo	isthmus
lago	lake, lock
lagoa	small lake, marsh
laguna	lagoon
laje	flat-topped rock
lugar	hamlet, place
mar	sea
mata	forest, wood, thicket
meridional	southern
moinho	mill
molhe	mole, pier
montanha	mountain
monte	mount
morro	hill, knoll
norte	north
o, os	the (masc.)
occidental	western
oeste	west
oriental	eastern
palheiros	fishing village
paredão	sea wall
pedra, s	rock, stones
pena	
penedo	rocky peak
peninsula	peninsula
pequeno	small
pico	peak
pinhal	pine wood
ponta	point (of land)
pontal	point, promontory
ponte	bridge, pier
ponte-cais	pier, jetty

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portinho ..... small port or harbour
porto ..... port, harbour
póvoa ..... large town
povoação *or*
povoado ..... village
praia ..... beach
preta, a ..... black
promontório ..... promontory

quebra-mar ..... breakwater
quebrada ..... cut, gap, precipice

rampa ..... ramp, boat-slip
restinga ..... spit, reef
ria ..... estuary, lagoon, sunken valley
ribeiro ..... brook
rio ..... river
rocha ..... rock
rochedo ..... rocky place
rocher ..... rock, rocky place

s. santo, a são ..... saint
sanatório ..... sanatorium
sepentrional ..... northern
serra ..... mountain range
serro ..... rocky reef or ridge
sul ..... south

terra ..... land
torre ..... tower

vale ..... valley
varadouro ..... landing
verde ..... green
vermelho, a ..... red
vigia ..... lookout
vila ..... town, village, villa

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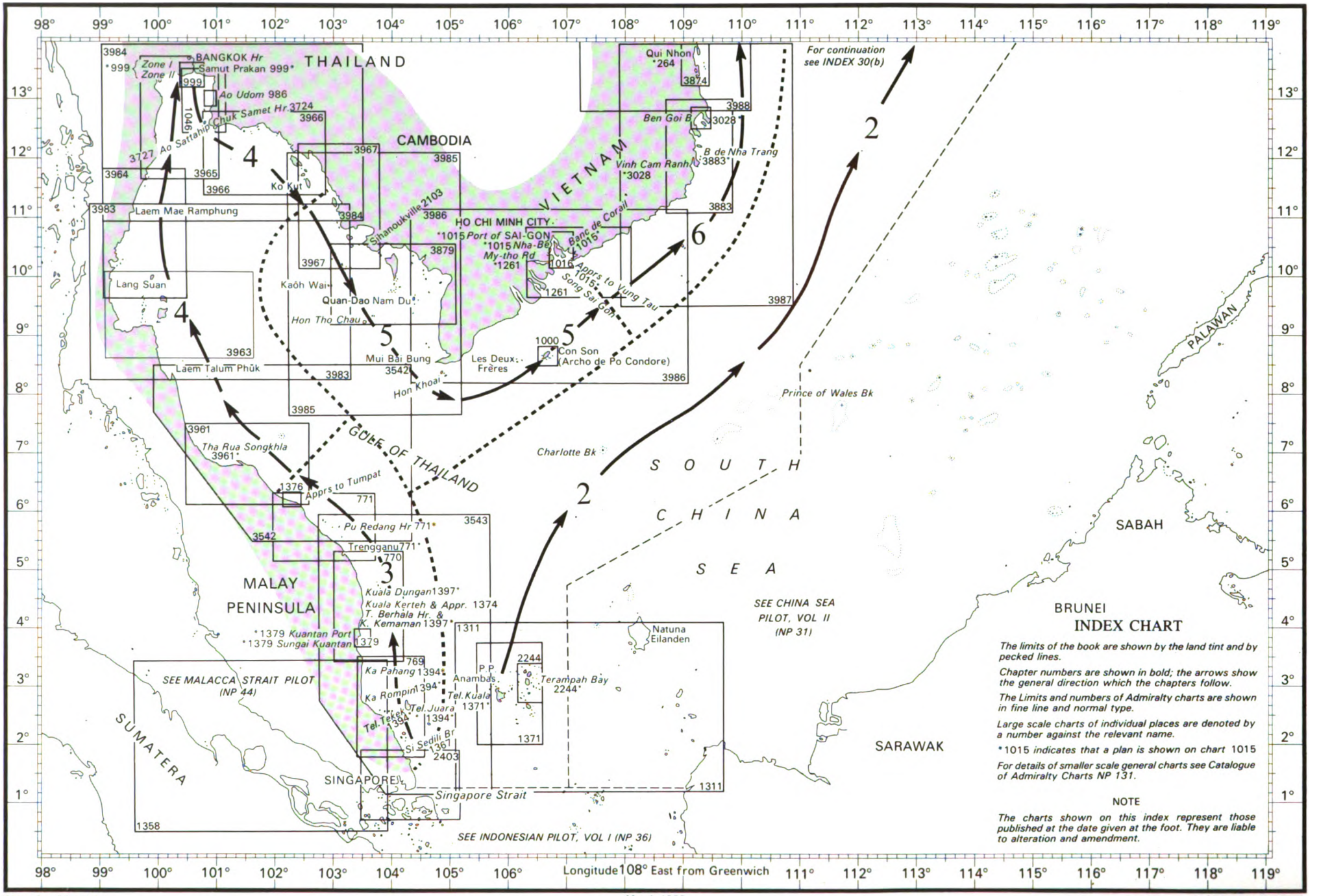

INDEX CHART

The limits of the book are shown by the land tint and by pecked lines.

Chapter numbers are shown in bold; the arrows show the general direction which the chapters follow.

The Limits and numbers of Admiralty charts are shown in fine line and normal type.

Large scale charts of individual places are denoted by a number against the relevant name.

**1015 indicates that a plan is shown on chart 1015*

For details of smaller scale general charts see Catalogue of Admiralty Charts NP 131.

NOTE

The charts shown on this index represent those published at the date given at the foot. They are liable to alteration and amendment.

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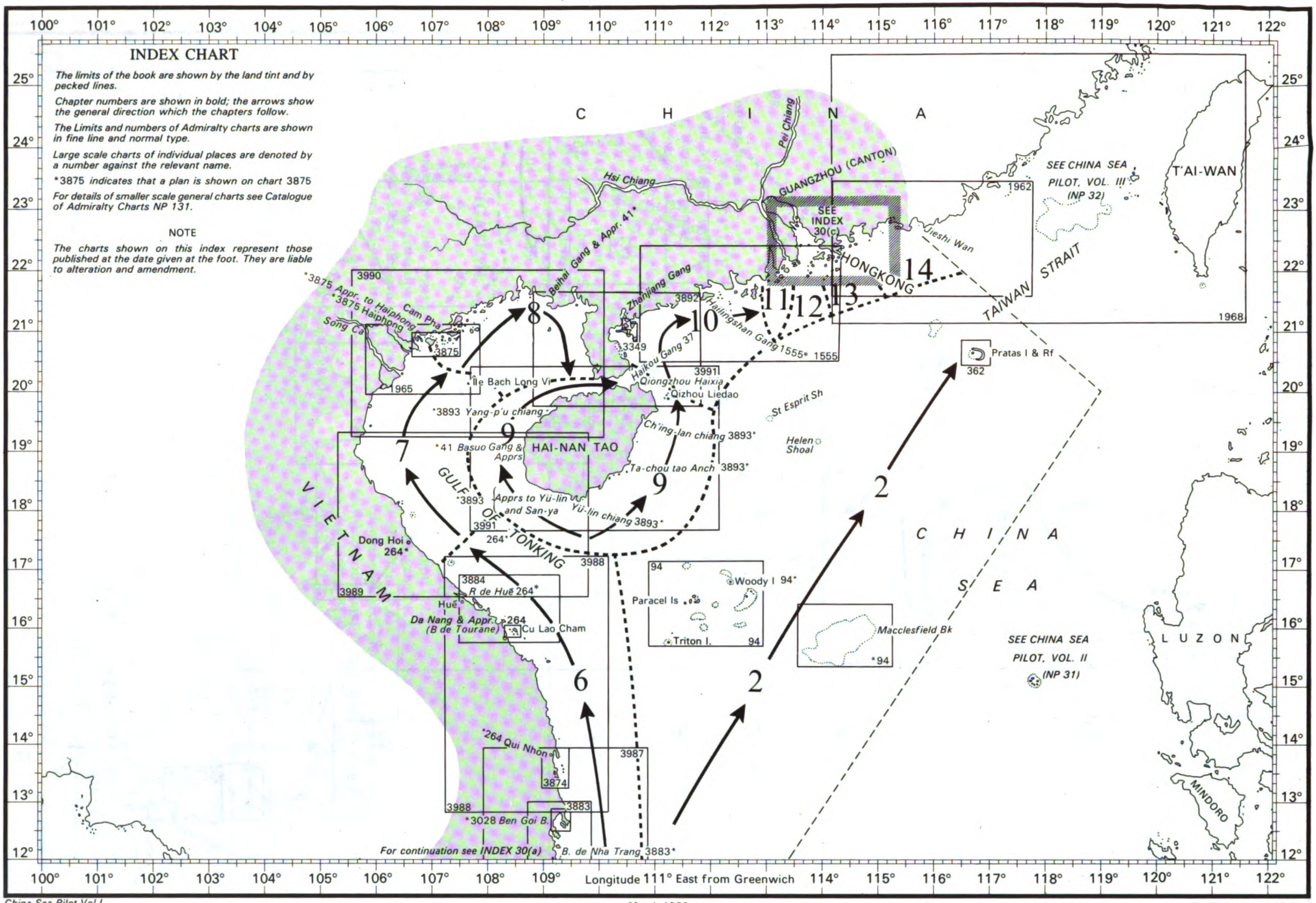

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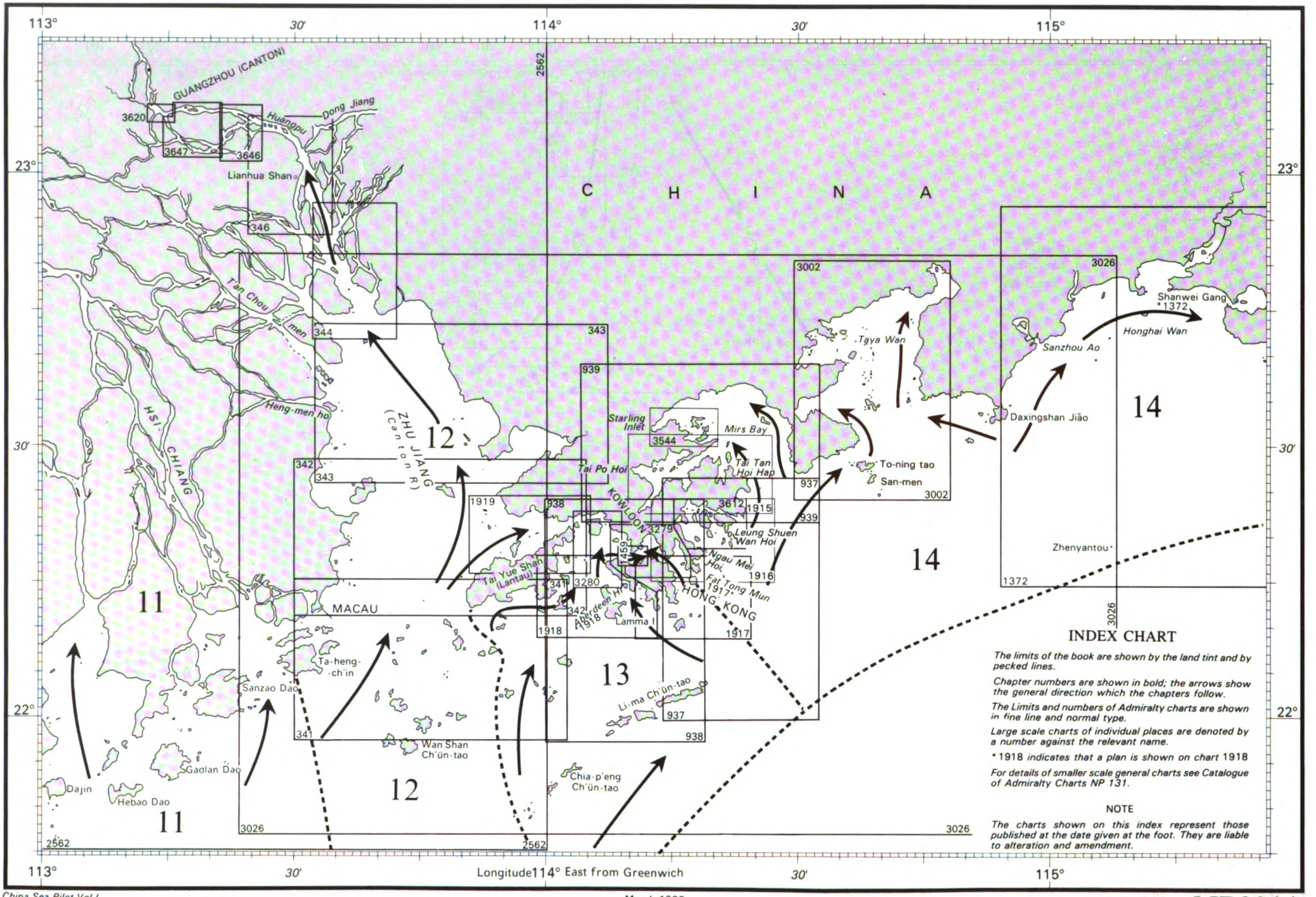

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**1918 indicates that a plan is shown on chart 1918*

For details of smaller scale general charts see Catalogue of Admiralty Charts NP 131.

NOTE

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LAWS AND REGULATIONS APPERTAINING TO NAVIGATION

While, in the interests of safety of shipping, the Hydrographic Department makes every endeavour to include in its publications details of the laws and regulations of all countries appertaining to navigation, it must be clearly understood:

(a) that no liability whatever can be accepted for failure to publish details of any particular law or regulation, and

(b) that publication of the details of a law or regulation is solely for the safety and convenience of shipping and implies no recognition of the international validity of the law or regulation.

CHINA SEA PILOT

VOLUME I

CHAPTER 1

NAVIGATION AND REGULATIONS
COUNTRY AND PORT INFORMATION
NATURAL CONDITIONS

NAVIGATION AND REGULATIONS

Chart 4508

1.1

Limits of the book

(*a*) From 1° 34′ N, 104° 15′ E, a position on the coast of Malaysia at the E end of Singapore Strait, thence N along

(*b*) The E coasts of Malaysia, Thailand, Cambodia, Vietnam and China to Zhelang Yan (22° 39′ N, 115° 34′ E), thence SE to

(*c*) 20° N, 119° E, thence SW to

(*d*) 8° 30′ N, 111° 00′ E, thence S to

(*e*) 7° 00′ N, 111° 00′ E, thence SW to

(*f*) 4° 30′ N, 107° 00′ E, thence S to

(*g*) 2° 50′ N, 107° 00′ E, thence SW to

(*h*) 1° 34′ N, 104° 34′ E, thence W to (*a*) above.

NAVIGATION

1.2

Passages. Information with regard to passages through the South China Sea, generally, will be found in *Ocean Passages for the World*. In this volume some of the intermediate local passages only are described.

Chart 2414

Ho Chi Minh City to Bangkok. From Ho Chi Minh City (5.149) the recommended route is to pass NW of Con Son (5.87) and Les Deux Frères (The Brothers) (5.86) at all times of the year and to give a wide berth to Hon Khoai (5.84) and the shoals off Mui Bai Bung (8° 37′ N, 104° 43′ E) (5.78).

During the SW Monsoon, from off Mui Bai Bung, the route is W of all the dangers in the fairway of the Gulf of Thailand until in about latitude 10° 40′ N; a certain amount of shelter is afforded by keeping towards the W side of the Gulf. Course should be steered to pass within sight of Ko Chuang Light (12° 31′ N, 100° 57′ E), thence to Ko Phai (12° 56′ N, 100° 40′ E), and thence direct to the Bangkok Bar Pilot Station off the entrance to Mae Nam Chao Phraya.

During the NE Monsoon, from off Mui Bai Bung, a vessel should steer NW between Hon Tho Chau (5.6) and the islands S of Dao Phu Quoc (5.36), thence passing a few miles W of Kaoh Rong Samloem (5.16) and Îles Samit; thence she should steer to pass SW of Kaoh Kusrovie (11° 07′ N, 102° 47′ E) (5.2), thence for S of Ko Chaung Lighthouse; and thence pass either side of Ko Phai, and thence to the Bangkok Bar Pilot Station.

Chinese ports open to navigation

1.3

The following Chinese ports within the limits of this volume are open to navigation by foreign merchant vessels:

Fangcheng (8.132a).
Beihai (8.134).
Basuo (9.7).
Haikou (9.25).
Zhanjiang (10.9).
Shekou (12.45).
Chiwan (12.45a).
Huangpu (12.70).
Guangzhou (12.88).
Shanwei (14.65).

Qiongzhou Haixia (Hainan Strait) may be navigated by foreign merchant vessels subject to compliance with the regulations (9.52).

Piracy

1.4

Attacks on vessels by armed thieves in the South China Sea have been reported in 1982, 1987 and 1988. These attacks are usually made from fast motor boats approaching from astern. Laden vessels with low freeboard are particularly vulnerable.

Mined areas

1.5

Certain areas within the limits of this volume in which mines are known to have been laid during the 1939–45 war have not been swept. Details of the areas are given in Appendix I.

Further extensive areas dangerous due to mines laid

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during hostilities in Vietnamese waters, between 1963 and 1973, exist; the details of most of these areas are not known.

Mine risks. The danger to surface ships from mines laid during the 1939–45 war, is decreasing, as the detonating mechanisms, triggered off in nearly all cases by a ship's magnetic field or by its machinery noise, become inoperative after many years. The risk to surface navigation from these mines is now considered no greater than normal navigational hazards. However, such mines continue to constitute a risk to ships anchoring, trawling or carrying out sea-bed operations and indeed, the explosive in the mines becomes more unstable with age.

For drifting and remoored mines, see *Annual Summary of Admiralty Notice to Mariners.*

Navigational risks. The existence of minefields has inhibited hydrographic surveying in them, and outside the swept routes there may be many uncharted wrecks and isolated shoals especially dangerous to deep-draught vessels.

Degaussing facilities. There are no degaussing facilities in the area covered by this volume.

1.6

Fishing fleets. Enormous fleets of fishing junks may be met off the coast of China. As a rule the junks have their smallest sail forward. Large trading junks have five masts, with two small sails aft. Chinese junks do not carry the regulation lights.

1.7

Fishing is a major industry and one of the main sources of food in many countries bordering the South China Sea.

For many years, due to primitive craft and equipment, the fishing grounds have been confined to the shallow and comparatively sheltered waters near the coast. However, with the progressive modernisation of the fishing industry in SE Asia, fishing grounds have been extended. Trawling is a significant development in these open-sea operations.

Fish are abundant, with little evidence of fish migration, but certain grounds have seasonal fishing due to their exposure to the NE and SW Monsoons.

All coastal regions off the E coast of Peninsular Malaysia may be considered potential fishing grounds, the main fishing port being Terengganu. Palisade traps, seine and drift nets, lines, lures, and bottom trawls are used.

Sizes of craft vary from rowing or sailing boats, 3 m in length, to power-driven craft 15 m in length. In coastal waters the fishing fleet may number from three to 50 vessels, with net and line fishing out to the 10 m line, and trawling in deeper waters. The coastal waters of East Malaysia are subjected to the full force of the NE Monsoon and this greatly reduces the fishing between the months of November and March.

In the Gulf of Thailand fishing is carried out in a coastal belt extending to the 40 m line. Bangkok is the main fishing port. Fishing is carried out, mainly by night, with pair trawling using otter trawls to depths of 30 m and net and line fishing to depths of 20 m. The fishing seasons are dictated by weather, thus during the NE Monsoon (November to March) the E side of the gulf if fished and during the SW Monsoon the W side.

In the N half of the South China Sea, as in the S, the fishing is confined mainly to the shelf regions and there is little activity in the deeper waters off the shelf. Little is known of the fishing operations along the Vietnamese coast but as fishing is an important industry there is little doubt that vessels will be active in these waters. On the coastal shelf of SE China, the fishing grounds extend from Hainan Dao in a NE direction. Within the 100 m depth contour trawling and long line fishing are carried out so that operations continue for most of the year. If the region is divided into three sub-regions, then fishing is carried out as follows:

(*a*) E of Hainan Dao	Long line	January to May.
	Trawling	Nov. to May.
(*b*) Central region (W of Pratas Reef)	Long line	May to August.
	Trawling	Nov. to May.
	100 m	February to Mar.
	50 m	June to October.
(*c*) SE of Hong Kong	Long line	Sept. to April.
	Trawling	Nov. to March.

The region is fished mainly by vessels from Hong Kong but visits are made by vessels from the Philippines. At Hong Kong there are about 10 000 vessels engaged in fishing, and while many only undertake limited day to day inshore operations, a great percentage do operate in the offshore regions.

1.8

Fishing stakes. On most of the banks fronting the shores, and probably off many parts of the coasts mentioned in this volume, particularly off the mouths of rivers, fishing stakes and enclosures will be met in depths of 5 to 10 m (16 to 33 ft) and in some cases in greater depths.

These enclosures are constructed of trees firmly driven into the banks, and interlaced with branches, etc, and form a considerable danger to vessels navigating at night in the depths mentioned above. They last many years, and to those with local knowledge are good landmarks.

Prior to 1955, fishing stakes were shown on Admiralty charts, but after that year only a caution, to the effect that they are liable to be encountered and that their positions are frequently altered, will be shown on the charts. The absence of fishing stakes from charts does not, therefore, imply that they do not exist.

1.8a

Fish aggregating devices have been moored at a number of places off the coast of Peninsular Malaysia in depths of up to 30 m. They are marked by buoys (special). Mariners should keep well clear.

1.9

Drilling rigs. Floating or fixed drilling rigs may be encountered in some of the waters covered by this volume, especially off the E coast of Malaysia, in the Gulf of Thailand and some areas off the China Coast. Buoys and light-buoys associated with drilling operations are frequently laid in the vicinity of the rigs. The positions of rigs and buoys are subject to frequent change and where known are promulgated by Navarea XI radio navigational warning messages. Permanent platforms, structures and buoys are charted.

1.9a

Gasfields and pipelines in the Gulf of Thailand. Numerous structures, usually showing lights Mo (U) 15 seconds and sounding fog signals Mo (U) 30 seconds, and below-water obstructions, some marked by buoys, exist in the gasfields. The limits of the gasfields are charted but some of the features within them may not be. Special care should be exercised by vessels navigating in the vicinity.

Flares at some structures may be visible for over 20 miles.

Anchoring within the gasfields is prohibited. Mariners risk prosecution if they anchor or trawl near a

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pipeline and so damage it. Gas from a damaged pipeline could cause a fire or the loss of a vessel's buoyancy.

1.10

Landmarks. With respect to the descriptions in this book concerning trees, many of which are from old surveys, and the shapes and colour of buildings, etc., caution must be exercised. Many new buildings may have been erected and old trees destroyed, so that such marks, which may at one time have been conspicuous on account of their isolation, shape or colour, may no longer exist or may now be difficult to distinguish.

TERRITORIAL WATERS

1.11

In the area covered by this volume the breadth of sea claimed respectively, as territorial waters, and as being under the state's jurisdiction for fishing are as follows:

	Territorial waters	*Jurisdiction for fishing*
Indonesia	12	200
Malaysia	12	200
Cambodia	12	200
Vietnam	12	200
Chinese People's Republic	12	—
Hong Kong	3	3

For details see Annual Summary of *Admiralty Notices to Mariners*.

Although Hong Kong has a three mile territorial limit, the boundary where it abuts on the territorial sea of China has not been agreed. If it is necessary to navigate near a boundary area, the advice of the local authorities in Hong Kong should be sought.

CHARTING

1.12

The general remarks on charts and their use as aids to navigation contained in *The Mariner's Handbook* should be read in conjunction with the following paragraphs.

In some parts of the area covered by this volume charts depend mainly on lead line surveys carried out in the nineteenth and early twentieth century: only off the Malaysian coast and in the Hong Kong area are charts based mainly on modern surveys. The coverage is summarised as follows:

Indonesia. The charts of Kepulauan Anambas are based on British surveys mainly carried out in the latter part of the nineteenth century. See caution in 2.6.

Malaysia. The charts of Malaysian waters are compiled mainly from British surveys although not all are based on modern survey techniques. The shifting nature of the bars fronting some of the rivers should be borne in mind when assessing the reliability of a chart, taking into consideration the date of the latest survey.

Thailand and Cambodia. The charts of the Gulf of Thailand are based on Thai and French charts prior to 1957. The date of the surveys from which these charts have been compiled is not known.

Vietnam. The charts of the S and E coasts of Vietnam are compiled mainly from French charts prior to 1956 and US charts prior to 1967. Not all, however, are based on modern techniques. There are no Admiralty charts showing details of the river up to Ho Chi Minh City. French charts are available but they are not maintained up to date and only serve to give an indication of the general direction of the channel.

China. Since 1978 charts published by the People's Republic of China have been available and modernisation of charts in the Admiralty series has been progressed. In 1987 modern Admiralty metric charts cover most of the coast E of Qiongzhou Haixia (Hainan Strait) to the limit of this volume and the major ports of Zhanjiang and Huangpu with their approaches. Elsewhere fathoms charts are based mainly on old surveys.

Macau. Charts of Macau are based on recent Portuguese charts.

Hong Kong. The waters of Hong Kong are based, in the main, on modern British surveys carried out in 1960 to 1964, supplemented by later surveys conducted by the Public Works Department, but the waters E of Lam Tong Hoi Hap (Tathong Channel) were surveyed in the beginning of the twentieth century.

ELECTRONIC AIDS TO NAVIGATION AND RADIO FACILITIES

1.13

Position-fixing systems. Loran C (skywave only) is available E of longitude 105° 30′ E.

Omega is available throughout the area covered by this volume.

For details of these systems see *Admiralty List of Radio Signals Vol 5*.

1.14

Radiobeacons transmit from the following positions:

Cua Ba Lat (7.58).
Hon Dau (7.65).
Grande Norway (7.67).
Baohu Jiao (9.86).
Naozhou Dao (10.15).

Aero radiobeacons. No aero radiobeacon should be used for marine navigation unless the cautions given in *Admiralty List of Radio Signals* are consulted. Because of these cautions aero radiobeacons are not mentioned in the body of this book.

BUOYAGE

1.15

The **IALA Maritime Buoyage System (Region A)** is in use in all countries covered by this volume except Cambodia and Vietnam. Details of the IALA system are given in *The Mariner's Handbook* (NP 100) and *IALA Maritime Buoyage System* (NP 735).

Details of buoys which are not in accordance with the system are given in the text when they are known.

The system of buoyage used in Cambodia and Vietnam is not known. The largest scale chart should be consulted but details may not be up to date and caution is necessary.

1.16

In Hong Kong Harbour the general direction of buoyage is from E to W.

1.17–1.19

Spare.

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PILOTAGE

1.20

Indonesia. Pilotage is compulsory for all ports in the Republic of Indonesia at which pilots are available.

Malaysia. Pilots are available at or near the principal ports of Malaysia. Details are given with the description of the ports.

Thailand. Pilotage is compulsory in all Thai ports for merchant vessels, except those under 250 tons register and certain local craft.

Vietnam. Pilotage is compulsory for ocean-going vessels from Mui Vung Tau to the border with Cambodia. In other ports, pilotage is compulsory when pilots are available.

China. Pilotage is compulsory in Zhujiang and in all Chinese ports open to foreign shipping (1.3).

Macau. Pilotage is compulsory.

Hong Kong. Pilotage is compulsory.

REGULATIONS

1.21

Thailand. The following are extracts from 'Law on Navigation in Thai waters' which has been published by the Thai Government, and which applies to all Thai territorial waters, and any harbours, anchorages, rivers and canals in the Thai dominions:

Every Master of a merchant ship shall hoist her colours on entering Thai waters, and shall keep such colours displayed during daylight until the ship shall have been boarded by the Harbour Master.

Every vessel entering Mae Nam Chao Phraya shall stop on arriving at the Guard Station at Samut Prakan (13° 36′ N, 100° 36′ E), and if necessary anchor there and allow the Health Officer and the Customs officials to come on board. Such Customs officials shall proceed in her to Bangkok, and remain on board until due permission to discharge shall be obtained, or until they shall be relieved by the Customs officials of Bangkok.

The Master of every vessel entering or going out of any port or river of the kingdom of Thailand, excepting Ko Si Chang and Ang Sila, shall anchor at the guard station of such port or river, report his arrival to the officer of the station, and follow the instructions which that officer shall give him.

The Master of every foreign vessel that does not belong to a nation represented by a Consul, shall, within 25 hours (unless a Sunday or holiday intervene) after the arrival within the limits of the harbour of Bangkok, report the arrival of his ship at the Harbour Master's office.

Such Master shall also deposit at the said Harbour Master's office the ship's articles, a list of passengers, the ship's register, and a true copy of Manifest if required.

The Master of a foreign vessel belonging to a nation represented by a Consul, shall lodge the said papers at the proper Consulate; he shall, however, on being boarded by the Harbour Master or his deputy, fill up the book handed to him, giving at the same time a correct list of all passengers and an account of any accidents or deaths that may have happened during the voyage.

A copy of the harbour regulations shall be handed to the Master of every vessel in case he has not already been provided with the same.

In khlongs and canals all boats going with the tide shall keep to the middle of the khlong or canal; when going against the tide they shall keep close to the bank. When either of these courses is not possible they shall keep to the middle of the channel, observing local rules now existing or hereafter to be made in regard to navigation in khlongs or canals.

Masters shall not swing vessels in rivers, channels, passages, or fairways, unless such river, channel, passage, or fairway be clear of vessels passing, or about to pass, in or out.

Masters of vessels proceeding into, or out of, harbours or narrow channels, shall cause the speed of such vessels to be kept as low as is consistent with the most prudent navigation, due regard being had to the vessel's safety.

Masters of steam vessels going through canals shall go at a slow speed, not exceeding 4 miles an hour, and, when crossing the fairway, shall not pass within 100 metres of the bow of any steamship going up or down the river.

No steamship or steam launch, either at anchor or under way, shall use her whistle except for the purpose of navigation or to avoid collision, nor shall the signal be unduly or wantonly prolonged. The same rule shall apply to the sound signal of motor-boats.

Masters of vessels are requested to inform their crews, when granting them leave, that they are not to land with sheath knives or other dangerous weapons, such as slung shots, &c.

Dangerous goods. Any vessel on entering any Thai harbour or river having on board dangerous goods, and any vessel about to take on board any dangerous goods, shall anchor at such place in the harbour or river as shall be pointed out by the Harbour Master or his deputy; and the said vessel shall not be removed therefrom without the permission of the Harbour Master.

The transhipment of any dangerous goods, as aforesaid, shall not take place between the hours of sunset and sunrise, without the written permission of the Harbour Master.

Petroleum. Every tank ship arriving in Thai waters, having on board petroleum in bulk, and every ship being about to take on board such petroleum from premises licensed for storing petroleum in bulk, shall display a red flag at her foremast head, and shall keep such flag flying during the hours of daylight whilst any petroleum is on board, and thereafter so long as she shall remain in Thai waters, and during the same period every such ship shall by night display two red lights, horizontally disposed, in a position where they can be best seen, and at a height of not less than 6·1 m (20 ft) above the deck. Provided that if the Harbour Master is satisfied that a ship after discharging the petroleum on board has been thoroughly emptied, cleaned, and ventilated, he may dispense with the requirements of this rule.

The Master of every tank ship arriving at a Thai port, and having on board petroleum in bulk shall, on entering his vesse! inward, and before proceeding to discharge any cargo, declare in writing to the Harbour Master:

(*a*) The quantity of petroleum the ship is carrying.

(*b*) The number of compartments or tanks in which oil is stored.

(*c*) The nature and quality of the oil, and whether it is covered by any, and what, certificate from the port of shipment or any intermediate port of call as to the temperature at which the oil gives off an inflammable vapour.

Upon such a declaration being received, and after due compliance with the requirements of the Customs, the Harbour Master may give permission to the ship to proceed at once to discharge the petroleum as hereinafter provided.

Quarantine. The following are hereby declared to be the quarantine anchorages in Thai waters:

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Abreast the Customs station at Ko Si Chang.

Abreast the Customs station at Samut Prakan in Mae Nam Chao Phraya.

Abreast the police station at Bang Kho Laem (13° 41′ N, 100° 30′ E) at Bangkok.

The quarantine station is at such place as may hereafter be appointed.

The Master or person in charge of any vessel arriving at or being in Thai waters, having on board, or having had on board within 14 days previous to arrival, cases of plague, cholera, smallpox, fever, or other infectious disease of a dangerous nature shall, if arriving within Thai waters, display the quarantine flag, and proceed forthwith to the quarantine station, and there remain until released by the Health Officer. If any such cases shall occur after a vessel has arrived in Thai waters, the Master or person in charge shall forthwith display the quarantine flag, and remove his vessel to a place approved by the Health Officer.

All vessels in quarantine will display by day the usual quarantine or yellow flag at the foremast head with the International Code pendant under it and by night at the foremast head a red light.

1.22

China—Regulations governing the supervision and control of foreign vessels. The following are extracts from the regulations.

These regulations shall be observed by all foreign vessels navigating in port areas and coastal waters of the People's Republic of China. The term coastal waters includes all inland waters and the territorial sea. Vessels shall be subject to inspection by the harbour authorities.

The Master of a vessel shall submit through his agent the forms required for completion of entry formalities a week before his expected arrival. The vessel's ETA and draught shall be reported 24 hours before arrival (or on her departure from a previous port of call if the voyage takes less than 24 hours). Any change in her ETA shall be reported.

Pilotage is compulsory for entering and leaving port and for all movements within a port.

In the port areas and coastal waters the national flag of the country of registry shall be hoisted. On entering or leaving port or shifting berth the vessel's signal letters and any signals prescribed by the harbour authority shall also be hoisted.

On arrival a vessel's entry report and other relevant forms shall be submitted. Ship's papers and other relevant documents shall be available for examination and the vessel shall be subject to inspection.

On arrival arms and ammunition will be sealed by the harbour authority. Radio transmitters, signal rockets, etc. may only be used in emergency. Ship's boats shall not be used within the port area except for the saving of life.

Application shall be made in advance for permission before carrying out the following:

(*a*) overhaul of boilers, main engines, windlass, steering gear or radio equipment.
(*b*) engine trials.
(*c*) lowering a boat for life-saving drill.
(*d*) decorating with coloured lights.

Vessels using VHF radiotelephone in port shall comply with the Provisional Regulations governing the use of VHF Radiotelephones by Foreign Vessels issued by the Ministry of Communications.

Any vessel requiring to dispose of refuse shall exhibit the signal prescribed by the harbour authority for the provision of a refuse barge.

No vessel shall discharge oils, oily mixtures or other harmful pollutants or refuse, within the port areas or coastal waters of the People's Republic of China.

If any ballast water, tank washings or bilge water is to be discharged from a vessel, application shall be made to the harbour authority for approval. Dirty water and hold washings from holds where dangerous cargoes or harmful pollutants have been stored shall only be discharged at the designated place after having been satisfactorily tested by the sanitation department concerned.

Where pollution has occurred within a port area or coastal waters the vessel at fault shall immediately report the matter to the harbour authority. All effective measures shall be taken to prevent the oil from spreading.

A vessel carrying a dangerous cargo shall exhibit the prescribed signals, comply with the regulations relating to the carriage of dangerous cargoes and take all necessary safety precautions.

The Master of a vessel carrying a highly dangerous cargo shall, three days before his ETA, inform the harbour authority through his agent, giving a description, the quantity, properties and details of the stowage of the cargo and shall not enter the port until permission has been obtained. The substances affected include explosives, highly poisonous articles, radioactive substances, compressed gases, liquefied gases, oxidizing agents, substances liable to spontaneous combustion, substances which, in contact with water, emit inflammable gases, inflammable liquids and solids, acidic corrosives, etc.

Before leaving a port the Master shall submit a departure report and other relevant forms for clearance examination and may only leave after clearance has been obtained.

The Master of a vessel requiring to enter a Chinese port open to foreign vessels for shelter or a temporary stay shall apply to the harbour authority for permission. Such application shall state:

(*a*) Name of vessel.
(*b*) Call sign.
(*c*) Nationality.
(*d*) Name of shipping company.
(*e*) Port of sailing.
(*f*) Port of destination.
(*g*) Vessel's position.
(*h*) Draught.
(*i*) Colour of hull and mark on funnel.

The Master of a vessel requiring to take shelter or to lie at anchor temporarily at a place in Chinese coastal waters other than a port open to foreign vessels shall, in addition to the above formalities:

(*a*) Report promptly to the nearest harbour authority giving the time and position of anchoring and the time of departure:
(*b*) Fulfil the requirements of the local authority and submit to their inspection and instructions:
(*c*) Allow no-one to land nor cargo to be loaded or discharged without permission.

A harbour authority is authorised to detail a vessel, to change her route or to order her to return to port in case of:

(*a*) Unseaworthiness:
(*b*) Violation of the laws or regulations of the People's Republic of China:
(*c*) Involvement in a marine accident:
(*d*) Non-payment of expenses incurred or failure to produce the required security.

1.23

Chinese inland waters. Regulations are in force

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with regard to the lights to be carried by vessels, sound signals to be made, and other subjects relating to the navigation of vessels in Chinese inland waters. Masters of vessels should make themselves conversant with these regulations, which should be obtained from the Chinese authorities.

1.24

Quarantine regulations, China. The following are extracts from the regulations which have effect in the ports of China where the health services are under the control of the Ministry of Health.

The Minister may, on the recommendation of the Director of Quarantine:

(*a*) Declare that any place within or beyond the Republic of China is infected with a quarantinable disease, or that a quarantinable disease is liable to be brought or carried from or through that place, and thereupon and for so long as such declaration remains in force that place shall be a *proclaimed place* within the meaning of these regulations. Public notification of every such declaration shall be made by the issue of a Harbour notification and by advertisement in the newspapers.

(*b*) Declare any port in the Republic of China to be a first port of entry for vessels coming from a proclaimed place and require masters of such vessels bound for China to enter a port so declared before entering any other Chinese port except in case of danger or for other sufficient reason.

(*d*) In consultation with the harbour authorities appoint places to be quarantine anchorages for vessels subject to quarantine inspection.

The Minister of Health shall prescribe the limits within a port to be used as quarantine anchorage.

The Master of any vessel subject to quarantine inspection shall, on arrival at a port to which these regulations apply, bring the vessel to the place appointed to be a quarantine anchorage.

(*a*) The hours of quarantine inspection of vessels shall be from sunrise to sunset, and during these hours the Quarantine Officer shall board every vessel requiring inspection as soon as possible after her arrival.

(*b*) The Quarantine Officer may on application inspect any vessel between sunset and sunrise if he is satisfied that the conditions on board, including lighting, will enable such inspection to be effectively performed.

The Master of any vessel subject to quarantine inspection shall, whenever possible, supply the Quarantine Officer by radio at least three hours previous to her arrival at the quarantine anchorage with the following information:

(*a*) The name of the vessel and the expected date and hour of her arrival.

(*b*) 1. Number of passengers on the vessel.
2. Number of crew on the vessel.
3. Number of passengers landing at the port.

(*c*) Name of oversea port of departure and name of last port of call.

(*d*) Number of cases of infectious disease during the last 15 days, or of deaths during voyage (stating name of diseases).

(*e*) Number and nature of any cases of non-infectious disease.

(*f*) Whether a ship's surgeon is carried.

For the purpose of these regulations the quarantinable diseases shall be: Plague, cholera, smallpox, typhus fever and yellow fever, and any other disease which may be prescribed by the Minister.

The Master of every vessel coming from a proclaimed place shall on arrival furnish to the Quarantine Officer as complete a list as possible of all passengers on board, and the full address, where obtainable, of any person who intends to disembark at the port.

The following vessels shall be subject to quarantine inspection on arrival:

(*a*) Every vessel which comes from a foreign port, unless exemption has been granted.

(*b*) Every vessel which comes from a proclaimed place.

(*c*) Every vessel which has infectious disease on board or on which a death has occurred since the last quaratine inspection.

The Master of every vessel subject to quarantine inspection shall:

(*a*) Display the quarantine signal on his vessel before she comes within one league (3 miles) of the port.

(*b*) Keep the quarantine signal displayed on his vessel until pratique has been granted.

The quarantine signal shall be by day the displaying of the yellow flag 'Q' at the foremast head, and by night, if in quarantine or if inspection has been arranged, the exhibiting of three red lights, vertically disposed, not less than 1·8 m (6 ft) apart; and when awaiting inspection, the sounding of three distinct prolonged blasts on the whistle repeated at intervals.

No unauthorised person shall go on board or alongside any vessel while the quarantine signal is displayed on the vessel.

Except in case of danger no Master of a vessel arriving at any port or place in China to which these regulations apply, and no person on board thereof, shall communicate, or attempt to communicate, with the shore or with any other vessel, and no person from the shore or from any other vessel shall communicate with such vessel otherwise than by signal until pratique has been granted. Provided that nothing in this section shall prevent any pilot or other duly authorised officer coming alongside or boarding any such vessel.

A Quarantine Officer may, by order in writing, order into quarantine any vessel, person, goods or articles being or likely to be infected with a quarantinable disease. When a vessel is ordered into quarantine, the Master thereof shall forthwith cause the vessel and all persons and goods on board the vessel to be conveyed to such mooring grounds or to such quarantine station as the Quarantine Officer directs.

When a vessel is in quarantine, then until the vessel is released from quarantine no unauthorised person shall land or unship, or move with intent to land or unship, any goods from the vessel. All persons ordered into quarantine shall perform quarantine, and for that purpose may

(*a*) Be detained on board the vessel.

(*b*) Be removed to and detained in a quarantine station until released in accordance with these regulations.

Where a vessel is ordered into quarantine in a port which has not the equipment necessary to receive it, the Quarantine Officer may order the Master to proceed to another port suitably equipped to carry out the necessary measure of quarantine.

1.25

Cables and pipelines. For information on the protection and hazards of submarine cables and pipelines see *The Mariner's Handbook*.

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1.26

International regulations concerning pollution of the sea by oil are given in *The Mariner's Handbook* and zones in which they apply are shown on the Routeing Charts.

DISTRESS AND RESCUE

1.27

See *The Mariner's Handbook* for arrangements in so far as they are applicable to the area covered by this volume.

A salvage organization is based at Guangzhou.

SIGNALS

1.28

Thai submarines. Thai vessels display a red triangular flag to denote that submarines, which may be submerged, are in the vicinity.

1.29

Thai waters. Naval signals to merchant vessels. Within Thai territorial waters merchant vessels may be signalled by Thai naval craft to stop, or to proceed in a certain direction for the purpose of search.

Signals for stopping vessels. By day, signals from the International Code will be used by a naval patrol craft. By night, repeated short and long flashes will be made by a naval patrol craft, or a rocket, from which a red flare is ejected, will be fired. Vessels which do not stop in answer to these signals will be fired on.

Signals for directing vessels. A naval aircraft, making an appropriate signal from the International Code, flying low round the vessel, and then proceeding towards a certain direction, indicates that the vessel must proceed in that direction. Vessels ignoring this signal will be warned by a burst of machine-gun fire directed ahead of the vessel.

1.30

Peninsular Malaysia. The following signals are in use within the limits of the ports in Peninsular Malaysia. All lights, shapes and signals required by the Regulations for Preventing Collisions at Sea, and all the flags and meanings of the International Code of Signals will be recognised within the port limits with the following modifications and additions:

Signal		*Meaning*
By day	*By night*	
Red flag	—	When displayed by a port service craft or buoy tender, will indicate that she is buoying, sweeping, or has a diver down, and vessels must keep well clear and reduce speed to dead slow when passing.
Red flag at both main yardarms	Red lights at both main yardarms	When shown on a dredger indicates: Keep well clear on both sides.
Black ball at one main yardarm. Red flag at other main yardarm	White light at one main yardarm. Red light at the other main yardarm	When shown on a dredger indicates: Do not pass on the side of the red flag or red light.

STORM WARNINGS

1.31

The following terms are used in storm warnings to indicate tropical disturbances of different intensities:

Tropical depression	Winds up to 33 knots.
Tropical storm	Winds from 34 to 63 knots.
Typhoon	Winds of 64 knots and over.

Radio weather and storm warning broadcasts. Storm warnings are broadcast by all weather services in those parts of the Far East which are liable to be affected by tropical storms or typhoons. An area of responsibility has been assigned to each weather service, and these areas overlap so that the whole region is effectively covered. Details of these transmissions by WT and RT in English are given in *Admiralty List of Radio Signals Vol 3.*

Details of the local storm warning signals used in Hong Kong waters are given in 13.110 and 13.111.

1.32

Thailand. The following system of visual storm signals is in use in Thailand.

Day signal	*Signification*
A yellow pennant	Tropical depression or storm with winds near centre not exceeding 33 knots.
A blue pennant	Tropical storm or storm with winds near centre between 34 and 63 knots.
A red pennant	Typhoon or storm with winds near centre exceeding 64 knots.

Signals indicating the locality of the storm are as follows:

A yellow flag	Area 1. Gulf of Thailand, E coast to Lat. 5° N and Long. 105° E.
A blue flag	Area 2. Gulf of Thailand, W coast to Lat. 5° N.
A red flag	Area 3. Andaman Sea.
A blue flag with a yellow square centre	Area 4. South China Sea bounded by S Vietnam coast, Lat. 12° N. Lat. 5° N, Long. 105° E, and Long. 112° E.

Signals indicating the occurrence of storms, with wind speeds near the centre not exceeding 64 knots, in the Gulf of Thailand and adjacent waters are displayed at Bangkok.

Signals indicating the intensity and locality of storms with wind speeds near the centre exceeding 64 knots are hoisted on the same yardarm with the pennant indicating the intensity and the flag indicating the locality of the storm. The pennant is hoisted above the flag.

In normal weather conditions a white pennant with a red circle is displayed at the upper yardarm.

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COUNTRY AND PORT INFORMATION

REPUBLIC OF INDONESIA

1.33

The Republic of Indonesia consists of the islands of Sumatera, Jawa, Madura, Sulawesi, Kalimantan (S part of Borneo), Nusa Tenggara Maluku, West Irian (W part of New Guinea), Kepulauan Riau, Lingga, Bangka, Beletung and some 3000 smaller islands.

Indonesia is a sovereign independent republic with governing authority vested in a President. On 27th March, 1968 General Suharto was elected by the Provisional People's Consultative Assembly and sworn in as President, Prime Minister and Minister of Defence.

The capital is Jakarta (6° 12′ S, 106° 50′ E) in Jawa. In 1972 the total population of Indonesia was estimated to be 127·7 million. The official language of Indonesia is *Behasi Indonesia*. The majority of the population is Moslem, but there is religious tolerance for all denominations.

1.34

The monetary system is the *Rupiah*, divided into 100 *sen*. Bank notes are issued of various denominations from one to 100 rupiahs; there are also aluminium coins of 1 to 25 sen and cupro-nickel coins of 50 sen.

The metric system of weights and measures is employed.

Kepulauan Anambas (2.5) are the only parts of the Republic of Indonesia which fall within the scope of this volume. For more detailed information see *Indonesia Pilot Vol 1*.

MALAYSIA

1.35

Malaysia, consisting of the former Federation of Malaya (now known as Peninsular Malaysia), the State of Singapore, and the former British colonies of North Borneo (renamed Sabah) and Sarawak, came into being on 16th September, 1963. By mutual agreement Singapore seceded from Malaysia on 9th August, 1965 to become an independent sovereign state. Malaysia is a member of the Commonwealth of Nations.

The only part of Malaysia covered by this volume is the E part of Peninsular Malaysia. Sabah and Sarawak are described in *China Sea Pilot Vol 2*, and Singapore and the W part of Peninsular Malaysia in *Malacca Strait Pilot*.

1.36

Constitution and Government. The constitution of Malaysia is based on that of the former Federation of Malaya, with the ruler of one of the Malay states elected among themselves, as Supreme head, for a period of 5 years. The capital of Malaysia is Kuala Lumpur (3° 11′ N, 101° 40′ E), which had in 1984 a population of just more than 1 million. The estimated population of Peninsular Malaysia in 1985 was 12.7 million.

The states of Malaysia falling within the limits of this volume are Johore (E coast), Pahang, Terengganu and Kelantan. The remaining five states, together with two former British Straits Settlements are described in *Malacca Strait Pilot*.

1.37

Communications. The Malaysian Railway connects with all the principal ports, Kuala Lumpur, and Singapore, and N with Bangkok.

There are good all-season roads along the E and W sides of Peninsular Malaysia, those on the W side being the better. There are virtually no roads across the peninsula.

There is considerable traffic by sea between all the ports of Malaysia and Singapore.

There are frequent and regular internal air services. At Kuala Lumpur there is an international airport with services to the international airport at Singapore and all parts of the world.

1.38

Currency. The unit of currency is the ringgit, also known as the Malaysian dollar, which is divided into 100 cents. Notes in denominations of 1, 5, 10, 20, 50, 100 and 1000 ringgit and coins of 1, 5, 10, 20 and 50 cents are in circulation.

Weights and measures. The metric system is in use.

1.39

Public holidays. The following are public holidays in Malaysia: where dates are not given they vary from year to year.

New Year's Day (1st January), Federal Day (1st February), Chinese New Year, Good Friday, Labour Day (1st May), Wesak Day, Birthday of Yang di-Pertuan Agong (Head of State), Hari Raya Puasa, Hari Raya Haji, National Day (31st August), First day of Muharam, Deepavali, Birthday of the Prophet Muhammad, Christmas Eve, Christmas Day and Boxing Day (24th–26th December).

1.40

Trade. The chief imports are machinery and transport equipment, food and live animals, and manufactured goods.

The chief exports are rubber, tin, metal, palm oil, wood (sawn timber and logs), and iron ore.

1.41

Quarantine. Pratique obtained at Singapore does not necessarily hold good in the harbours of Malaysia. All vessels arriving from infected or suspected ports should therefore display the quarantine flag.

1.42

Physical features. A general description of the physical features, minerals, flora and fauna of Peninsular Malaysia, is given in Chapter 1 of *Malacca Strait Pilot*.

1.43

Johore. The state of Johore lies at the S end of Peninsular Malaysia, its E coast with its off-lying islands, extending N to Kuala Endau (2° 40′ N, 103° 38′ E). The country is less mountainous than other parts of the peninsula.

The most important rivers on the E side of Johore are Sungai Sedili Besar and Sungai Endau; the latter flows from the foothills of Gunong Besar, 30 miles WSW of Kuala Endau and towards the end of its course separates Johore from Pahang. Sungai Sembrong and its tributaries, rising in a range of mountains which culminates in **Gunong Blumut** 1008 m (3308 ft) high, 38 miles S of Kuala Endau join Sungai Endau 12 miles S of its mouth.

Pahang. The coastline of the state of Pahang extends from Kuala Endau to Tanjong Geliga Besar (4° 10′ N, 103° 27′ E) about 95 miles N. Several rivers discharge into the China Sea and can be navigated by small craft during the SW Monsoon, but with the exception of Sungai Kuantan are often inaccessible during the NE

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Monsoon. Sungai Pahang is the largest and is fairly wide for about 70 miles.

Terengganu. The coastline of the state of Terengganu extends from Tanjong Geliga Besar to a point 3 miles NW of the mouth of Sungai Besut, which is situated 113 miles NW of Tanjong Geliga Besar.

The W and inland half of Terengganu is almost uninhabited, the population being concentrated on the rivers and along the coastline.

The country is divided into sixteen river basins, all of which discharge into the China Sea. Sungai Kemaman and Sungai Terengganu can be entered by coastal steamers all the year round, but the other rivers can only be entered by small craft, and during the NE Monsoon the landing and loading of cargo by lighters is frequently impracticable.

Sungai Kemaman, which traverses the S portion of the state, is navigable by large river boats for a distance of 30 to 40 miles.

Kelantan. The state of Kelantan lies between Terengganu on its E side, Pahang on its S side, Perak on its W side, the Kingdom of Thailand on its NW side and the China Sea on its NE side. The coast, about 40 miles long, is low and sandy, backed by a fertile plain densely populated and closely cultivated. S of the plain the country is hilly, the highest hills being those of the main range of Peninsular Malaysia; this part of the state is thinly populated.

Kota Baharu (6° 09′ N, 102° 14′ E) situated near the mouth of Sungai Kelantan, is the capital.

Sungai Kelantan, the basin of which comprises nearly the whole of the state, is the most important river. It has a length of about 120 miles and is navigable by shallow draught launches for about 8 miles, but ocean-going vessels cannot cross the bar at the river mouth.

THAILAND

1.44

The **Kingdom of Thailand,** formerly known as **Siam,** took its present name in 1939. During its history the limits of the Kingdom have varied considerably. In this volume the coast, bordering the China Sea, is considered to extend from the N border of Peninsular Malaysia, or the state of Kelantan, to Cambodia.

1.45

Constitution and Government. The Kingdom of Thailand has been subject to considerable constitutional changes. Until 24th June, 1932, Siam was an absolute monarchy, but on that date a *coup d'etat* was effected and a provisional constitution promulgated. The present Constitutional Monarchy promulgated in October, 1974 provides for a bicameral National Assembly consisting of an elected House of Representatives, currently with 279 members, and an appointed Senate of 100 members.

For the purposes of administration, Thailand is divided into 71 provinces (changwads) each under the control of a Changwad Governor. The Changwads are subdivided into 570 districts (amphurs) and sub-districts (king-amphurs), 5458 communes (tambons) and 48 715 villages (moobans).

1.46

Area and population. The area of Thailand is 514 000 sq km and the population in 1985 was nearly 52 million. Bangkok, the capital had a population of more than 5 million in the same year.

The prevailing religion is Buddhism.

1.47

Currency. The unit of currency is the *baht*, which is divided into 100 *satang*. Notes in denominations of baht 10, 20, 100 and 500 and coins of satang 25 and 50 and baht 1 and 5 are in circulation.

Weights and measures are generally in the metric system.

1.48

The calendar. Legislation passed in 1940 provided that the calendar year shall coincide with the Christian year, and that the year of the Buddhist era 2484 shall begin on 1st January, 1941 (the New Year's day was previously 1st April). The year BE 2521 therefore corresponds to AD 1978.

1.48a

Public holidays. The following are official public holidays: where dates are not given they vary from year to year.

New Years Day (1st January), Makhabucha Day, Chakri Day, Songkran Day, Coronation Day (5th May), Ploughing Day (8th May), Wisakabucha Day, Ahsalahabucha Day, HM The Queen's Birthday (12th August), Chulalongkorn Day (23rd October), HM The King's Birthday (5th December).

Other holidays may be observed by various communities.

1.49

Commerce. The chief product of Thailand is rice, which forms the national food and the main article of export. Other products are maize, sugar, coconuts, groundnuts, tobacco, and cotton. The mineral resources are extensive and varied, including tin ore, wolfram, antimony, coal, copper, gold, iron, lead, manganese, rubies, sapphires and zinc.

The principal imports are foodstuffs, beverages and tobacco, crude materials, petroleum products, chemicals, manufactured goods, machinery, vehicles and miscellaneous commodities.

1.50

Communications. *Shipping.* There is regular communication by sea between Bangkok and Singapore via the ports in Gulf of Thailand, and also with Hong Kong.

Bangkok is a port of entry for Laos, and goods arriving in transit are sent up by rail to Nong Khai and ferried across the Mekong River to Vientiane.

Railways. In 1975 there were 3765 km (2339 miles) of state railways open to traffic. The Southern Line runs from Bangkok to the frontier station of Padang Besar, where it connects with the Malaysian railway from Pinang and Singapore. The Northern Line runs from Bangkok to Chieng Mai (741 km), the extreme N terminus.

Airways. There is an international airport at Bangkok.

CAMBODIA

1.51

History. Cambodia became a French protectorate in 1863 and was granted independence within the French Union as an Associate State in 1949. Full sovereign independence was proclaimed on 9th November, 1953.

Following a period of increasing economic difficulties and growing indirect involvement in the Vietnamese War, Prince Sihanouk was deposed in March, 1970 and on 9th October, 1970 the Kingdom of Cambodia became the Khmer Republic. From 1970 hostilities extended throughout most of the country involving

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North and South Vietnamese and US forces as well as Republican and anti-Republic Khmer troops. During 1973 direct American and North Vietnamese participation in the fighting came to an end, leaving a civil war situation which continued during 1974 with large scale fighting between forces of the Khmer Republic supported by American arms and aid, and the forces of the United National Cambodian Front including Khmer Rouge communists, supported by North Vietnam and China. After unsuccessful attempts to capture Phnom Penh, the capital, in 1973 and 1974, the Khmer Rouge ended the 5-year war in April, 1975 when the remnants of the republican forces surrendered the city.

There followed a reign of teror during which all city dwellers were banished to the country to till the fields, and all having links with the previous government were eliminated. Relations with Vietnam and Thailand worsened and in 1978 Vietnamese forces invaded Cambodia. Phnom Penh was captured in January, 1979. Non-communist forces and the Khmer Rouge continued resistance and a large Vietnamese occupying force was necessary to maintain control. The resistance forces have become more effective since 1985 and the traditional anti-Vietnamese sentiment has become more pronounced among the populace.

1.52

Constitution and Government. Following the surrender of Phnom Penh in April, 1975 the whole country came under the control of the Royal Government of National Union which had been set up by Prince Sihanouk whilst in exile in Beijing in 1970. A new constitution established Democratic Kampuchea as a communist people's republic in January, 1976. A 250 member assembly was elected in March to choose a State Presidium the chairman of which became the Head of State. Prince Sihanouk and the cabinet resigned in April.

Following the capture of Phnom Penh by Vietnamese forces in 1979 the People's Republic of Kampuchea came into being. This regime is not recognised by the United Nations. A National Assembly was formed in 1981 and a constitution was promulgated but the real power rests with Vietnam. The Khmer Rouge and other resistance groups have formed a loose coalition which governs in some areas not controlled by the Vietnamese forces.

1.53

Area and population. Cambodia has an area of about 181 000 sq km, divided into 17 provinces. The total population of 6·8 million (1970) included Vietnamese, Chinese, Chams and Europeans. The chief towns are Phnom Penh, the capital, situated at the junction of the Mekong and Tonle Sap rivers; Battambang; Kompong Chhnang and Kompong Cham. The population of these towns has fluctuated greatly since 1970 by flows of refugees from rural areas and from one town to another.

The official language is Khmer.

1.54

Currency. The monetary unit is the *riel* = 100 *sen*. There are coins of 10, 20 and 50 sen and notes of 1, 5, 10, 20, 50, 100 riels.

Trade. The chief product is rice; others are rubber, maize, livestock, timber, pepper, haricot beans and fish. The chief imports are petroleum products, metals and machinery (including vehicles), general foodstuffs and chemicals.

1.55

Communications. *Shipping.* The principal port is the capital, Phnom Penh, which can be reached via the Mekong River through Vietnam by ships of between 3000 and 4000 tons. A new ocean port has been built at Kompong Saom, formerly Sihanoukville on the Gulf of Thailand, and is being increasingly used by long-distance shipping. A considerable amount of cargo is carried by small craft, junks and barges to and from Ho Chi Minh City.

Railways. Phnom Penh is linked by railway to Poipet on the Thailand border and also with Kompong Saom.

Aviation. Pochentong Airport, 10 km from Phnom Penh maintains limited international air services mainly with Hanoi. The airport at Siemreap, which is closed to international traffic, and several minor airports maintain internal services between Phnom Penh and provincial capitals.

VIETNAM

1.56

History. The name **Vietnam** includes the three countries of **Cochin-China, Annam** and **Tonkin,** all of which formerly formed part of French Indo-China.

In March, 1946 after World War II, French forces re-entered Vietnam to declare it a free state within the French Union, but the Democratic Republic of Vietnam, with Ho Chi Minh as president, had been formed a year earlier, and continued to press for complete independence. In December, 1946, negotiations with France broke down and full scale hostilities began.

After the defeat of the French at Dien Bien Phu in May, 1954, terms for a cease-fire were settled and provided for provisional partition of Vietnam into two military zones with the French S of 17° N in South Vietnam and the Democratic Republic N of 17° N in North Vietnam.

From 1959 the forces from North Vietnam actively assisted insurgent movements in South Vietnam, and supported and trained the National Liberation Front. From 1964 thousands of North Vietnamese regular troops were deployed in the South. In 1961 the USA joined the War on the side of the anti-communist regime in Sai-gon, now known as Ho Chi Minh City. In January, 1973 a peace agreement was finally signed. It provided for a cease fire in the S, and the withdrawal of US forces. The US forces were withdrawn but the cease fire was not observed. Following a series of rapid victories the Sai-gon army was effectively routed and by May, 1975 a Provisional Revolutionary Government was in complete control of South Vietnam.

The unification of North and South Vietnam into the Socialist Republic of Vietnam took place formally on 2nd July, 1976.

1.57

Constitution and Government. In June, 1976 a Commission was set up to draft a new constitution for reunified Vietnam. The previous North Vietnam Constitution stated that North Vietnam was a 'people's democratic state based on the alliance between the workers and peasants and led by the working class', and that the Democratic Republic of Vietnam is advancing step by step from people's democracy to socialism.

At the elections for the new National Assembly 492 candidates (243 from the S) were elected.

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Local Government Authorities are the people's councils, which appoint executive committees. A special form of autonomous administration has been established in the regions inhabited by the ethnic minorities.

All political power stems from the Communist Party of Vietnam (until December 1976 known as the Workers' Party of Vietnam). In 1977 the Politburo consisted of 14 members.

1.58

Area and Population. Vietnam, which includes North and South Vietnam, has a total area of 335 767 sq km, and is bordered on the N by China and on the W by Laos and Cambodia. Since the Communist takeover in the S all the Vietnamese provinces are being organized into 36 larger economic regions.

The population of Vietnam in 1983 was 57·6 million.

In the North the population is most dense in the Red River Delta; in the South the population is concentrated in the fertile plain of the Mekong Delta and in the central lowlands.

The capital of Vietnam is Hanoi which, in 1983 had a population of 879 500. Ho Chi Minh City, formerly Sai-gon, had an estimated population in 1983 of 2¾ million.

1.59

Currency. The monetary unit is the *dong* = 100 *hao*. There are coins of 1, 2 and 5 hao and notes of 1, 2, 5 and 10 dong.

1.60

Commerce. USSR and China are Vietnam's main trading partners, others are Japan, Singapore and Hong Kong.

In the North, next to mining, food processing and textiles are the most important industries; there is also some machine building. Older industries include cement, cotton and silk manufacture. Local industries and handicraft account for half of the production.

In the South five types of enterprise exist; state-owned, co-operative, mixed co-operative, national capitalist and private, the latter tending to be grouped in 'production cells'. Foreign firms, principally French, continue to function but all US property has been nationalized. There is little heavy industry and most industry is concentrated in and around Ho Chi Minh City.

The main exports are coal, farm produce, fish and livestock. In a good year the rice crop is enough to feed the population. Imports are technical equipment, industrial raw materials, foodstuffs and medical supplies.

1.61

Communications. *Sea and waterways.* The major seaports are Haiphong which can handle ships of 10 000 tons, Ho Chi Minh City, and Da Nang. Regular services are maintained to Hong Kong, Singapore, Cambodia and Japan. In 1953 there were 830 km of navigable waterways in the North and in 1971 4783 km in the South.

Railways. Re-building and repairs to the railways progress after the cessation of hostilities, and through trains now run between Hanoi and Ho Chi Minh City.

Airways. As well as internal services there are international services from Hanoi to China and East European countries.

1.62

Territorial zones. In May, 1977 Vietnam established a 24 mile wide safety, customs, health control and immigration zone, and a 200 mile wide economic zone. See also 1.11.

LAOS

1.63

Although Laos has no seaboard, seaborne trade is conducted on the Mekong River at certain times of the year (July to December) between Ho Chi Minh City (Sai-gon) and **Vientiane** (18° 00′ N, 102° 45′ E), the capital, 760 miles up river.

Until 1955 Laos formed part of French Indo-China. The war in Laos between the Royal Lao Government, supported by American bombing and Thai mercenaries, and the dissident communist-led Pathet Lao which was supported by large numbers of North Vietnamese troops ended in 1973, and a provisional coalition government was formed by the two sides in 1974. However, after the communist victories in neighbouring Vietnam and Cambodia in April, 1975, the Pathet Lao took over the running of the country. On 29th November, 1975 HM King Savang Vatthana abdicated and the People's Democratic Republic of Laos was proclaimed.

1.64

Area and population. Laos has an area of about 235 700 sq km and is bordered on the N by China, the E by Vietnam, the S by Democratic Kampuchea and on the W by Thailand and Burma. Apart from the Mekong river plains along the border of Thailand, the country is mountainous, particularly in the N, and in places is densely forested.

The total population in 1976, was estimated at 3 million, and the capital, Vientiane, in 1977 of 120 000.

1.65

Currency. The unit of currency is the *Kip* which is divided into 10 *bi* or 100 *at* (cents). There are coins of 10, 20 and 50 at and notes of 1, 5, 10, 20, 50, 100, 200, 500, 1000 and 5000 kips.

Weights and measures. The metric system is in force.

1.66

Trade. The principal exports are hydroelectric power, tin, timber and coffee: the main imports are petroleum, foodstuffs, machinery and transport vehicles.

1.67

Shipping. Vessels of 200 tons and 1·7 m draught can reach Vientiane (18° 00′ N, 102° 45′ E) at certain seasons (July to December).

Mekong river is an important navigable waterway but it is interrupted by rapids. There are four stretches above Ho Chi Minh City which can be navigated when the river is sufficiently high (July to December) by vessels of suitable size and draught, and with power to maintain the speeds given below:

Ho Chi Minh City—Khone—Pakse.
373 miles (690 km); 500 tons; 2·4 m draught; 7 knots.

Pakse—Savannakhet (16° 35′ N, 104° 40′ E).
140 miles (257 km); 200 tons; 1·7 m draught; 12 knots.

Savannakhet—Vientiane.
250 miles (458 km); 200 tons; 1·7 m draught; 7 knots.

CHINA

1.68

China is composed of 21 provinces (excluding T'ai-wan), five autonomous regions (including Tibet), and three municipalities (Beijing, Shanghai and Tianjin).

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The provinces on the seaboard are Guangxi, Guangdong, Fujian, Zhejiang, Jiangsu, Shandong, Hebeo and Liaoning.

The only parts of China included in this volume are in the provinces of Guangxi and Guangdong.

The most important features of the two provinces mentioned above are the rivers which drain them. The rivers have their source in the province of Yunnan about 2000 km inland, and combine to form Hsi Chiang or West river which flow into the sea W of Macau.

1.69

Recent history and government. The People's Republic of China was proclaimed on 1st October, 1949 by Mao Tse-tung, following the defeat by Communist forces of the Kuomingtang government led by General Chiang Kai-shek which fled to the island province of T'ai-wan. Beijing once again became the capital of China after an interlude of from 1928 to 1949 when the capital was Nanking.

In October, 1971, the People's Republic of China was admitted to the United Nations in place of the Kuomingtang regime as the representative of China. Several countries still, however, withhold full recognition.

In January, 1975 a new constitution was adopted which established the leading role of the Chinese Communist Party in all spheres of national life. The post of State Chairman was abolished and the Standing Committee of the National People's Congress, consisting of about 140 members, now appears to act as the Collective Head of State. Local government is carried out by Local People's Congresses and Revolutionary Committees.

1.70

Population. According to Chinese sources in 1982 the population of China had reached over 1008 million with a rate of increase of 2 per cent per year.

1.71

Language. The principal northern Chinese dialect has been adopted as the national language of China and is now generally spoken in the south. It is known in China as putong hua (common speech) rather than by its English name of Mandarin. Other dialects are still used by some local communities in southern districts.

The written language, being ideographic and not phonetic, is common to all dialects. The Chinese authorities have a continuing policy of introducing simplified characters.

In 1979, pinyin, the Chinese phonetic system for the transliteration of names, was adopted in place of the Wade-Giles system. Admiralty charts used the Wade-Giles system until 1979: since then pinyin has been used. Names in the fourth edition of this volume were originally all spelled according to the Wade-Giles system: in this revised edition many have been altered to pinyin to conform to modern editions of the charts. The glossary on pages xv and xvi contains words in both the Wade-Giles and pinyin forms of spelling.

1.72

Currency. The currency is called reniminbi (RMB) meaning people's currency. The unit is the yuan also known as a kuai. The yuan is divided into 100 fen or cents, 10 fen being known as a jiao or mao. Notes are in denominations of 10, 5, 2 and 1 yuan and 5, 2 and 1 jiao, and coins of 5, 2 and 1 fen.

1.73

Weights and measures. The metric system is used. The units are:

1 dan or picul = 0·05 metric tonne.

1 jin or catty = 1·10 lbs = 0·50 kilogram.

1 mu = 1·65 acres = 0·67 hectare.

1 foot = 1·09 English feet = 0·33 metre.

1.73a

Public holidays. The following are observed: New Year's Day (1st January), Chinese New Year, Women's Day (½ day) (8th March), Labour Day (1st May), National Day (holiday may last up to 3 days) (1st October).

1.74

Production. China is essentially an agricultural country and is self-sufficient except in cotton. Livestock is raised in large numbers. Silkworm culture is one of the oldest industries. The mineral wealth of the country is very great. Coal is of excellent quality. Iron ore, tin, antimony, wolfram, bismuth and molybdenum are also abundant. Oil is produced in certain provinces.

The principal articles of export are animals and animal products, oils, textiles, ores, metals and tea. The principal imports are raw cotton, cotton yarn and thread, motor vehicles, machinery, chemical fertilizer plants, wheat, aircraft, books, paper and paper-making materials, chemicals, metals and ores, and dyes.

1.75

Communications. The principal ports within the scope of this volume, are Huangpu, which is being developed as the deep water port for Guangzhou, and Zhanjiang (21° 11′ N, 110° 24′ E). The Chinese Merchant fleet is expanding rapidly, with an estimated displacement of 2 828 000 tons in 1975. Coastal shipping is also important.

Inland waterways total about 150 000 km of which about 40 000 km are navigable by powered vessels.

Railways. The principal railways within the scope of this volume in 1976 were:

Beijing–Guangzhou (over 2300 km) via Chengchou, Wuhan, Chuchou, Hengyang.

Guangzhou–Kowloon.

Guangzhou–Shan-shui.

Sunning railway (55 km long) connects Chiang-men with the N coast of Tong Kwa.

Roads. In 1975 there were probably about 750 000 km of motor roads in China. 83 per cent of the communes could be reached by road in 1976.

Aviation. In 1975 there were 107 internal routes. Since 1964 a number of foreign airlines have been permitted to set up regular services to Chinese cities.

MACAU

1.76

Macau (**Aomen** in Chinese) comprises the peninsula of Macau, an enclave on the mainland of South China and three nearby islands, the two Taipa islands and Coloane. It lies 35 miles W of Hong Kong on the W side of the mouth of Zhujiang. The capital, the city of Macau, lies on the peninsula.

Macau was established by the Portuguese in 1557 as a trading post with China, and became a Portuguese Overseas Province in 1951.

After a military coup in Portugal in April, 1974, Colonel Jose Garcia Leandro was appointed governor of the province. A new statute, drawn up in 1975, redefined Macau as a 'Special territory' under Portuguese legislature, but with a greater measure of administrative and economic independence. The legislature, with Colonel Leandro as its head, consists of six elected members, six appointed by the governor and six chosen by business association; these measures have been approved by the People's Republic of China.

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The area of the province is 16 sq km and in 1984 it had a population of 400 000.

1.77

Currency. The unit of currency is the *pataca* which is divided into 100 *avos*. There are coins of 5, 10, 50 and 100 avos, 1 and 5 patacas, and notes of 5, 10, 50, 100 and 500 patacas.

Weights and measures. The metric system is in force.

1.78

Economic affairs. The mainstays of Macau's economy are textile manufactures and tourism, the attractions for the latter being gambling and dog-racing which represent 60 per cent of the total revenue. The majority of visitors travel by sea-ferry and hydrofoil services from Hong Kong. Visas are required.

HONG KONG

1.79

History. The Crown Colony of **Hong Kong** (**Xianggang** in Chinese) lies off the S coast of China on the E side of the approaches to Zhujiang. Hong Kong Island was ceded to Britain under the terms of the Treaty of Nanking in 1842. Kowloon Peninsula was acquired in 1860, and the New Territories were leased by China in 1898 for a period of 99 years. The Charter bears the date of 5th April, 1843, and since then Hong Kong has been under British administration, with the exception of the period from 25th December, 1941 to 30th August, 1945 during World War II when it was occupied by the Japanese.

Hong Kong Island is separated from the mainland on its N side by a strait ½ to 3 miles wide, which comprises the harbour. Victoria (22° 17′ N, 114° 09′ E), the capital city of the Colony, lies on the N side of the island, and on the mainland opposite lies the city of Kowloon.

Hong Kong is a picturesque island rising sharply to a central ridge which is mainly over 300 m (1000 ft) high. The summit of the island, Victoria Peak, 551 m (1809 ft) high is near the W end. The natural vegetation is mostly grass and bushes with small trees in sheltered places. Neighbouring islands including Tai Yue Shan (Lantau), the waters of Tai Pang Wan (Mirs Bay) to E and Hau Hoi Wan to W, and an area of the mainland beyond Kowloon known as the New Territories, comprise the rest of the Colony, the total area of which is 404 sq miles. This includes some large areas of steep and unproductive hillside. Substantial reclamations have been made, and the New Territories now include several flourishing towns.

1.80

Constitution and Government. Hong Kong is administered as a Crown Colony with a Governor, aided by an Executive Council consisting of six official and nine unofficial members, and a Legislative Council which consists of 22 official and 27 unofficial members. There is also an Urban Council, financially autonomous in which is vested, *inter alia*, power of making bye-laws in respect of certain matters of public health and sanitation, culture and recreation.

The official languages are English and Chinese. Cantonese is universally spoken and putang hua (1.71) is widely understood.

1.81

Population. The total population of the Colony was estimated in 1982 to be 5 287 800 of which 98 per cent were Chinese.

1.82

Currency. The unit of currency is the Hong Kong dollar. These are coins of 5, 10, 20 and 50 cents and 1, 2 and 5 dollars, and notes of 10, 50, 100, 500 and 1000 dollars.

Weights and measures. The metric system is being introduced but some English and Chinese measures may still be in use.

1.83

Customs requirements. The only goods on which duties are levied are tobacco, hydrocarbon oils, methyl alcohol and alcoholic liquors (including proprietary medicines and toilet preparations containing more than 2 per cent of proof spirit). All imports except foodstuffs and exports are subject to an 0·02 per cent *ad valorem* charge.

1.84

Industry. The economic policy is mainly export orientated and is based on free enterprise and free trade. The main industry is textiles and clothing which employs 42 per cent of the labour force, and accounts for 41 per cent by value of total domestic exports. Other major light industries include electronic products, clocks, watches, toys, plastic products, metalware, footware, cameras, and travel goods. Heavy industries include ship-building and repairing, aircraft engineering, and iron and steel rolling. Agriculture, fishing and some mining are the main primary industries.

1.85

Public holidays. The only holidays during which work in the harbour may cease are the three days of the Chinese New Year, a moveable festival occurring in January/February (from the first to third day of the first moon of the Lunar Calendar).

The following are public holidays: where dates are not given they vary from year to year.

New Years Day (1st January), Ching Ming Festival, Good Friday to Easter Monday, Tuen Ng Festival, HM the Queen's Birthday, Liberation Day (25th August), Mid-autumn Festival, Chung Yeung Festival, Christmas Day and Boxing Day (25th–26th December).

1.86

Communications. There is regular and frequent communication by sea with all parts of the world.

There are frequent scheduled air services to all parts of the world from Kai Tak International Airport situated on the N shore of Kowloon Bay.

A railway runs between Kowloon and the Chinese Frontier. Passengers travelling to China disembark at the frontier and walk across to board a Chinese train. Goods trains go right through. A 10 mile underground railway is under construction and will join Hong Kong Island to Kowloon.

Hong Kong and Kowloon are also linked by a road tunnel and a constant ferry service.

PRINCIPAL PORTS, HARBOURS AND ANCHORAGES

1.87

	Malaysia
Mersinğ (3.22) (2° 26′ N, 103° 51′ E)	Small commercial port.
Kuala Rompin (3.63) (2° 49′ N, 103° 29′ E)	Fishing port.
Kuantan (3.79) (3° 48′ N, 103° 21′ E)	Small commercial port.
Kuantan Port (3.83) (3° 58′ N, 103° 26′ E)	Commercial port.

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Tanjong Berhala (3.90a) (4° 15′ N, 103° 28′ E)	Large commercial port. Base for offshore exploration.
Port of Kerteh (3.97a) (4° 35′ N, 103° 28′ E)	Offshore tanker berths.
Kuala Terengganu (3.107) (5° 20′ N, 103° 09′ E)	Small commercial port.
Tumpat (3.130) (6° 08′ N, 102° 14′ E)	Small timber exporting port.

Thailand

Narathiwat (4.3) (6° 27′ N, 101° 50′ E)	Small commercial port.
Pattani (4.12) (6° 54′ N, 101° 15′ E)	Small commercial and fishing port.
Songkhla (4.17) (7° 13′ N, 100° 35′ E)	Commercial port.
Bangkok (4.117) (13° 42′ N, 100° 34′ E)	Large commercial port.
Ao Udom Pier (4.131) (13° 08′ N, 100° 53′ E)	Export of tapioca.
Sriracha Oil Terminal (4.132) (13° 07′ N, 100° 53′ E)	Offshore tanker berths.
Ko Si Chang (4.135) (13° 09′ N, 100° 49′ E)	Transhipment area.
Laem Krabang (4.144) (13° 05′ N, 100° 53′ E)	Deep-water commercial port under development.
Ao Sattahip (4.161) (12° 39′ N, 100° 51′ E)	Naval base.
Chuk Samet (4.166) (12° 37′ N, 100° 55′ E)	Commercial port.

Cambodia

Kampong Saom (5.22) (10° 38′ N, 103° 30′ E)	Commercial port.

Vietnam

Vung Tau (5.130) (10° 19′ N, 107° 50′ E)	Anchorage.
Ho Chi Minh City (5.149) (10° 47′ N, 106° 42′ E)	Commercial port.
Nha Trang (6.75) (12° 16′ N, 109° 12′ E)	Small commercial port.
Qui-Nhon (6.126) (13° 46′ N, 109° 15′ E)	Commercial port.
Da Nang (6.168) (16° 04′ N, 108° 13′ E)	Large commercial port.
Haiphong (7.87) (20° 52′ N, 106° 40′ E)	Large commercial port.
Hon Gay (8.34) (20° 58′ N, 107° 04′ E)	Commercial port.
Cam Pha (8.65) (21° 02′ N, 107° 22′ E)	Coal exporting port.

China

Fangcheng (8.132a) (21° 37′ N, 108° 20′ E)	Commercial port.
Beihai (8.134) (21° 27′ N, 109° 03′ E)	Commercial port.
Basuo (9.7) (19° 06′ N, 108° 37′ E)	Export of iron ore. Commercial port.
Haikou (9.25) (20° 02′ N, 110° 16′ E)	Commercial port.
Sanya (9.62) (18° 11′ N, 109° 28′ E)	Commercial port under development.
Yulin (9.66) (18° 13′ N, 109° 32′ E)	Small commercial port. Naval base.
Zhanjiang (10.30) (21° 09′ N, 110° 24′ E)	Large commercial port.
Hailingshan (10.56) (21° 34′ N, 111° 48′ E)	Anchorage.
Jiuzhou (12.26) (22° 14′ N, 113° 35′ E)	Commercial port. Base for offshore exploration.
Shekou (12.45) (22° 29′ N, 113° 54′ E)	Base for offshore exploration.
Chiwan (12.45a) (22° 29′ N, 113° 53′ E)	Commercial port.
Huangpu (12.70) (23° 06′ N, 113° 27′ E)	Large commercial port.
Guangzhou (12.88) (23° 06′ N, 113° 14′ E)	Declining commercial port.
Yantian (14.35) (22° 35′ N, 114° 16′ E)	Major port under development.
Shanwei (14.65) (22° 26′ N, 115° 20′ E)	Commercial and fishing port.

Hong Kong

Hong Kong (13.61) (22° 17′ N, 114° 10′ E)	Very large commercial port.

Macau

Macau (12.18) (22° 12′ N, 113° 33′ E)	Small commercial port. Ferry terminals.

Repairs

1.88

Major repairs can be carried out at Bangkok, Haiphong, Guangzhou and Hong Kong.

Minor repairs can be carried out at Chuk Samet, Ho Chi Minh City, Qui-Nhon, Da Nang, Haikou and Macau.

1.89

Dry docking facilities are available at Bangkok (largest dry dock 137 m long), Haiphong (vessels up to 150 m long), Guangzhou (largest dry dock 155 m long) and Hong Kong (largest floating dock 260 m long).

Supplies and facilities

1.90

All tupes of fuel can be supplied at Bangkok, Sriracha, Chuk Samet, Nha Trang, Haiphong, Guangzhou and Hong Kong.

Diesel fuel can be supplied at Kuantan Port and Ho Chi Minh City.

1.91

Fresh water can be supplied at all the ports listed in 1.87 though there may be local shortages at certain times of the year.

1.92

Deratting. Deratting can be carried out and deratting exemption certificates can be issued to vessels as follows:

	Full deratting facilities	*Exemption certificates only*
Malaysia	Kuantan Port (3.83)	Tanjong Berhala Harbour (3.90a).
Thailand		Bangkok (4.123).
Cambodia	Kampong Saom (5.29).	

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	Full deratting facilities	*Exemption certificates only*
	Phnom Penh (5.117).	
Vietnam	Ho Chi Minh City (5.153)	Vungtau (5.130).
	Haiphong (7.89)	Cam Ranh (6.54).
		Nha Trang (6.75).
		Qui-Nhon (6.126).
		Da Nang (6.168).
China	Beihai (8.136).	
	Haikou (9.25).	
	Zhanjiang (10.42).	
	Guangzhou (12.94).	
Hong Kong	Hong Kong (13.106).	

1.93

Diplomatic representation. British consular officers can be contacted at the following addresses:

Malaysia	British High Commission Consular Section 186 Jalan Ampang 50450 Kuala Lumpur
Thailand	British Embassy Wireless Road Bangkok
Cambodia	Staff temporarily withdrawn
Laos	Staff resident at the British Embassy, Bangkok
Vietnam	British Embassy 16 Pho Ly Thuong Kiet Hanoi
China	British Embassy 11 Guang Hua Lu Jian Guo Men Wai Beijing

1.94

Compass adjustment. Arrangements to adjust compasses can be made at Bangkok and Hong Kong.

1.95

Measured distances. There are measured distances at:

Tanjong Penuba (3.49).
Ko Si Chiang (4.140).
Yulin (9.71).
Guishan Dao (12.13a).
Lantau (Hong Kong) (13.13).
Tseung Kwan O (Hong Kong) (13.48).

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NATURAL CONDITIONS

BATHYMETRY AND SEABED

1.96

A large number of islands subdivide the waters of SE Asia into several different seas connected by numerous channels and passages. The structure of the seabed and that of the local land makes the region a very complex structure. Deep trenches, chains of mountains, rows of volcanoes, deep sea basins and countless coral islands form a complexity of phenomena which are not found in other parts of the world.

The whole area is supported by a partly submerged land bridge joining the Asian and Australian continents, with the South China Sea and Java Sea occupying basins on this bridge.

1.97

South China Sea, which stretches from T'ai-wan to the equator, provides the only direct connection between the North Pacific Ocean and the Indian Ocean. This large body of water exercises a considerable influences upon the climate, which is essentially tropical throughout the year.

Sunda Shelf is the name given to the extension of the Asian continent which connects Asia with the islands of Borneo, Sumatera and Jawa; it supports the S half of the South China Sea. In this area depths do not exceed 200 m. Sunda Shelf is intersected with river valleys similar to those found in the Java Sea.

The deep sea basin of the South China Sea, with a maximum known depth of 5030 m (2750 fm), lies along the axis of this sea N of a line Mui Vung Tau (10° 19′ N, 107° 05′ E) to Tanjong Baram (4° 36′ N, 113° 58′ E). To the S of this line the entire area is supported on the Sunda Shelf and thus has depths of less than 200 m. To the N of this line the major portion of the region is contained in the South China Sea Basin with depths in excess of 1800 m (984 fm). In the N area the shelf is confined to the coastal regions, its width varying considerably due to the coastal configuration. Off the S coast of Vietnam, the mean width of the shelf is 12 miles but farther N off the coast of China the width increases to 150 miles.

There are two large shallow areas within the limits of the deep sea basin, the Macclesfield Bank and the Paracel Islands and Reefs. The Bank is a submerged atoll with a mean depth of 75 m (41 fm) but over which a number of shallower patches exist. The Paracels are an extensive group of low-lying islands and reefs with deep passages between them.

1.98

Seamounts. No seamounts have been reported in the area covered by this volume.

1.99

In the deep waters off the Sunda Shelf, the seabed is floored with soft mud and ooze, providing a smooth sedimentary surface layer. The depth of the layer is not known but is probably similar to that of the Pacific Ocean, which is estimated to be about 300 m. Patches of sand, coral and rock surround the reefs and banks in this region. In the shallower shelf regions, mud is still the dominant sediment but is interspersed by large patches of sand and smaller patches of rock, stone and coral.

Along the E coast of Peninsular Malaysia the seabed is floored by a large belt of sand which extends N from the Bangka Strait. The belt has a mean width of 40 miles opening to 100 miles NE of Anambas Kepulauan, and then tailing away to 10-mile strip in the N of the region. Off the coast of Malaysia in the vicinity of 4° N, there is a large mud patch. The outlying islands of Kepulauan Anambas are supported on a sand/mud bed and are bordered by coral.

In the Gulf of Thailand the bottom is floored by mud with isolated patches of sand/mud, and sand and stone in the coastal regions. From the S tip of the W shore to 7° 30′ N, the coast is fronted by a sand/mud strip, varying in width from 5 to 40 miles. To the N of this latitude to the head of the Gulf, mud predominates in the coastal region with small isolated patches of sand and coral. In the outer approaches to Bangkok there is a comparatively large area of sand with a smaller area of sand and shell adjoining it. Along the E shore, bordering the coast of Cambodia, there is an extensive belt of sand/mud of mean width 40 miles, with mud predominant close inshore. Around the islands in the SE part of the Gulf, sand is the dominant sediment. In the main mud areas the bottom is generally soft and smooth.

Along the coast of Vietnam, S of 12° N, the shelf is floored by a continuous sand bottom which extends S as a belt 100 miles wide almost to the W coast of Borneo. Inshore of the sand belt, off the low-lying alluvial coast of the E tip of Vietnam, mud is the dominant sediment. In the waters of the Mekong River delta the bottom is sand/mud. Farther to the N there are isolated patches of mud and stone. Coral surrounds the islands and shallow areas dispersed over the sand belt. To the N of 12° N along the narrow coastal shelf, rock is abundant on a mainly mud bottom with very narrow sand strips fringing the shore.

On the wide shelf region supporting the Gulf of Tonkin and bordering the S coast of China, mud is the main constituent with sand/mud present in patches close inshore and along the edge of the shelf. Across the S entrance to the Gulf of Tonkin is an elongated patch of sand/mud, and fronting the S shore of the Gulf are narrow belts of sand and sand/mud. In the outer approaches to Haiphong, sand predominates over the mud and there are large areas of sand and sand/mud. To the N of Hainan Dao (9.1) the bottom is floored by mud, but relatively large areas of sand lie along the edge of the shelf and isolated patches of stone and sand/mud are located on the mud bottom.

SEA INFORMATON

1.100

Sea and swell conditions of the area are directly related to the monsoons, and since the NE Monsoon (November to March) winds are stronger than those of the SW Monsoon (July and August), the maximum sea and swell conditions therefore occur during the winter months. The presence of islands, which tend to obstruct the passage and reduce the height of the sea and swell generated by the monsoons, together with the weakening of the wind force in the lower latitudes, S of 5° N, means that more favourable sea conditions will be met in the S part of South China Sea area.

To the N of 5° N during the height of the NE Monsoon (December/February), seas are predominantly moderate with the occasional rough sea; in February about 50 per cent of observations indicate a moderate or higher state of sea, while to the S of that latitude seas are mainly slight with only 20 per cent

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frequency of moderate conditions. Calm seas are the exception throughout the area.

During April and May there is a marked improvement in sea states with a mean frequency of 80 per cent smooth to slight seas, and 10 per cent calms prevailing throughout the whole area.

As the SW Monsoon develops, sea waves increase in height, particularly in the N part of the area, where the sea states are generally higher than during the NE Monsoon with an increase in frequency of rough seas. In the S part where the winds are lighter, slight seas predominate and moderate seas are relatively rare.

In September, with the weakening of the SW Monsoon, the seas moderate and in October there is a high frequency of slight seas throughout the area.

The Gulf of Thailand is fairly sheltered from the winds of both monsoons and thus the region has a high percentage of calm to slight seas throughout the year. In February, when the sea conditions are bad in the South China Sea, the frequency of sea waves under 1 m in height in the Gulf of Thailand is over 80 per cent.

In the Gulf of Tonkin the highest frequency of moderate to rough seas is experienced during the period of the NE Monsoon (November to March), when the monsoon blows into the Gulf. During this period the swell from the NE enters the S half of the Gulf of Tonkin but does not exceed low to moderate seas.

In the summer months (May to September) the winds of the SW Monsoon result in slight to moderate seas, but local thunderstorms or squalls can cause a temporary worsening of sea conditions. The frequency of low swells increases, but there are considerable periods of no swell.

Sea Surface temperature

1.101

The seasonal distribution is illustrated in diagrams 1.101.1 to 1.101.4 on pages 18 to 21, with a minimum in February and maximum in August. There is a considerable seasonal range over the N sector and a marked increase from N to S in winter. Seasonal change is small elsewhere and almost uniform over the whole sea area around August. Variations from the average seldom exceed 1°C, but may be plus or minus 4° C temporarily near Hong Kong in winter. Similar temporary variations between sea and air temperature occur in this sector N, reaching 2 or 3°C at times.

Salinity

1.102

The salinity of the area covered by this volume is extremely variable and is in direct contrast to the uniform sea surface temperatures experienced. In general, water masses of low salinity form at the surface and high salinity water of oceanic origin is found at depth. Excessive rainfall and river run-off result in the formation of the low salinity masses, while the penetration of oceanic water into the area provides the high salinity masses. Between these two masses, a large area of mixed water is formed. These different water masses are transported by the monsoonal currents to and fro such that many regions are alternately filled with waters of different origin resulting in large seasonal variations of salinity.

The sources of low salinity are the mouths of the big rivers; the Mekong in Vietnam is a typical example where the discharge from the river has a greater influence on the salinity than the actual rainfall.

Density

1.103

Density is computed from temperature and salinity with corrections to allow for the effect of pressure. Thus variations in either the value or distribution of temperature or salinity will automatically change the density. In the S half of the South China Sea, S of 11° N, where the annual variation of sea surface temperature is small, the density is largely governed by variations in salinity but in the N part of South China Sea, where there is a relatively large variation of sea surface temperature, changes in salinity have little or no influence on the density.

Areas of low density, which may be expected in the South China Sea, are given in the following table:

Month	*S Part*	*N Part*
Jan, Feb, March	NE and SW sides of Gulf of Thailand	No lows.
April, May	NE side of Gulf of Thailand	Localised lows off S coast of Vietnam and off Haiphong.
June, July, Aug, Sept, Oct	All coastal areas	S coast of Vietnam and China coast Central Vietnam and China coast.
Nov, Dec	Low less dense with lows on W & central Gulf of Thailand and of coast of Cambodia	S approaches to Gulf of Tonkin.

MARINE LIFE

1.104

Venomous fish. There are many species of venomous and dangerous fish in the area covered by this volume.

The 'scorpion' or stone fish is found in shallow waters over rocky or weedy bottoms throughout the area. The 'scorpion' has a number of venomous spines along its back which can inflict an exceedingly painful wound. Certain species of catfish are dangerous and are found in coral reefs and in the river mouths of Malaysia, Thailand and Vietnam. Stingrays may be found in shallow waters over a muddy bottom anywhere in the area.

Barracudas, considered the most dangerous of fish, and several species of shark inhabit the area. The barracuda is to be found in the shallow coral and rocky regions as well as with the shark in the more open waters. Moray eels are common and are particularly dangerous during April to May, their breeding season.

A species of jellyfish, whose sting can cause death, is to be found in the Gulf of Thailand and in the coastal waters of Vietnam and S China. Sea snakes, with a bite that is extremely toxic, may be encountered in coastal waters throughout the area and are particularly prolific in Malaysia.

1.105

Bioluminescence is most frequently observed in the shallow regions of the S part of the South China Sea and in the Gulf of Thailand from April to October; the displays are primarily of the 'Milky Sea' and 'glowing ball' types. In the N part of the South China Sea, off Hong Kong and in the inlets and bays of S China, luminescence is common from December to February due to the large concentrations of zoo plankton which

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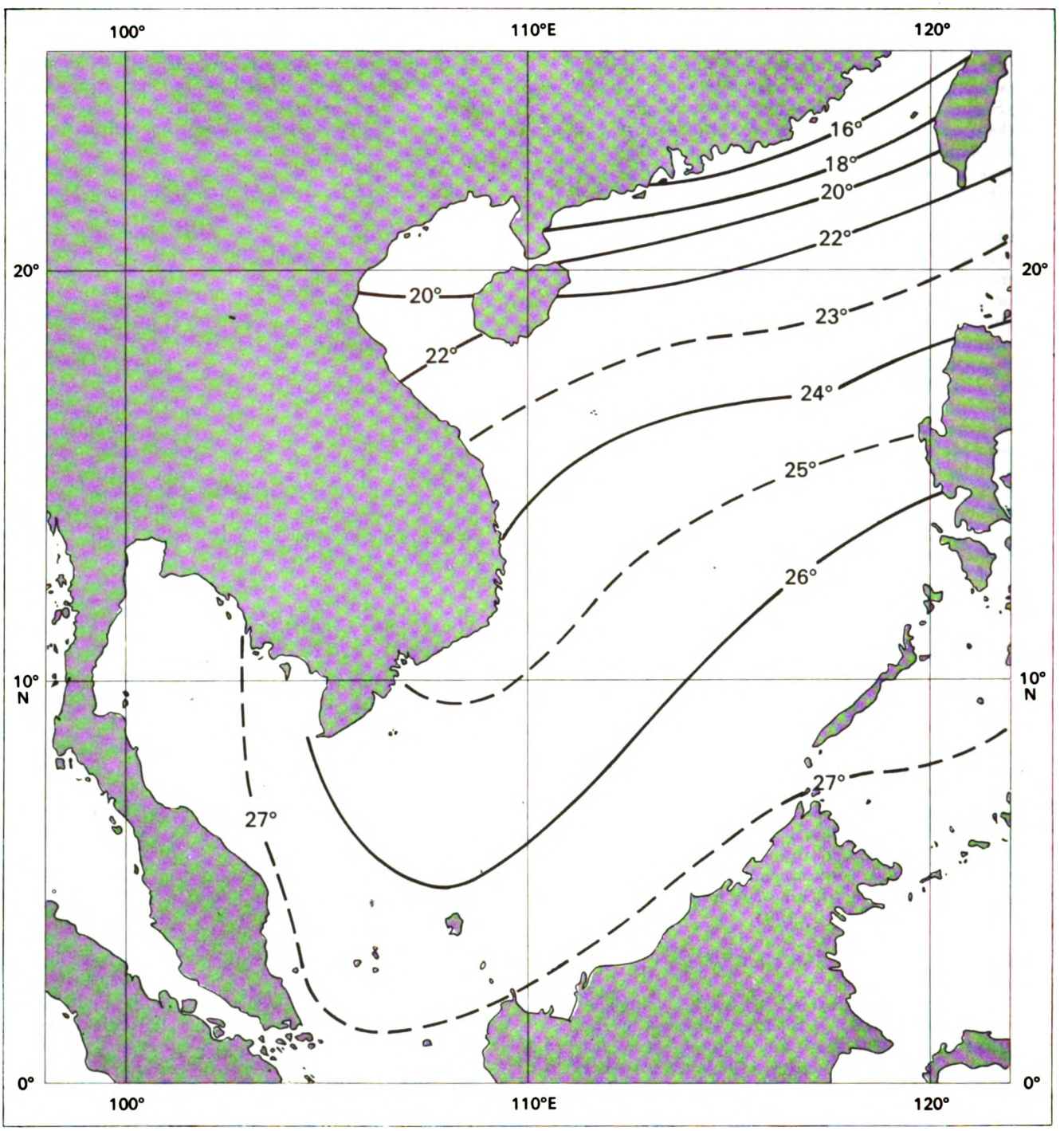

(1.101.1) Average sea surface temperature (°C)—February

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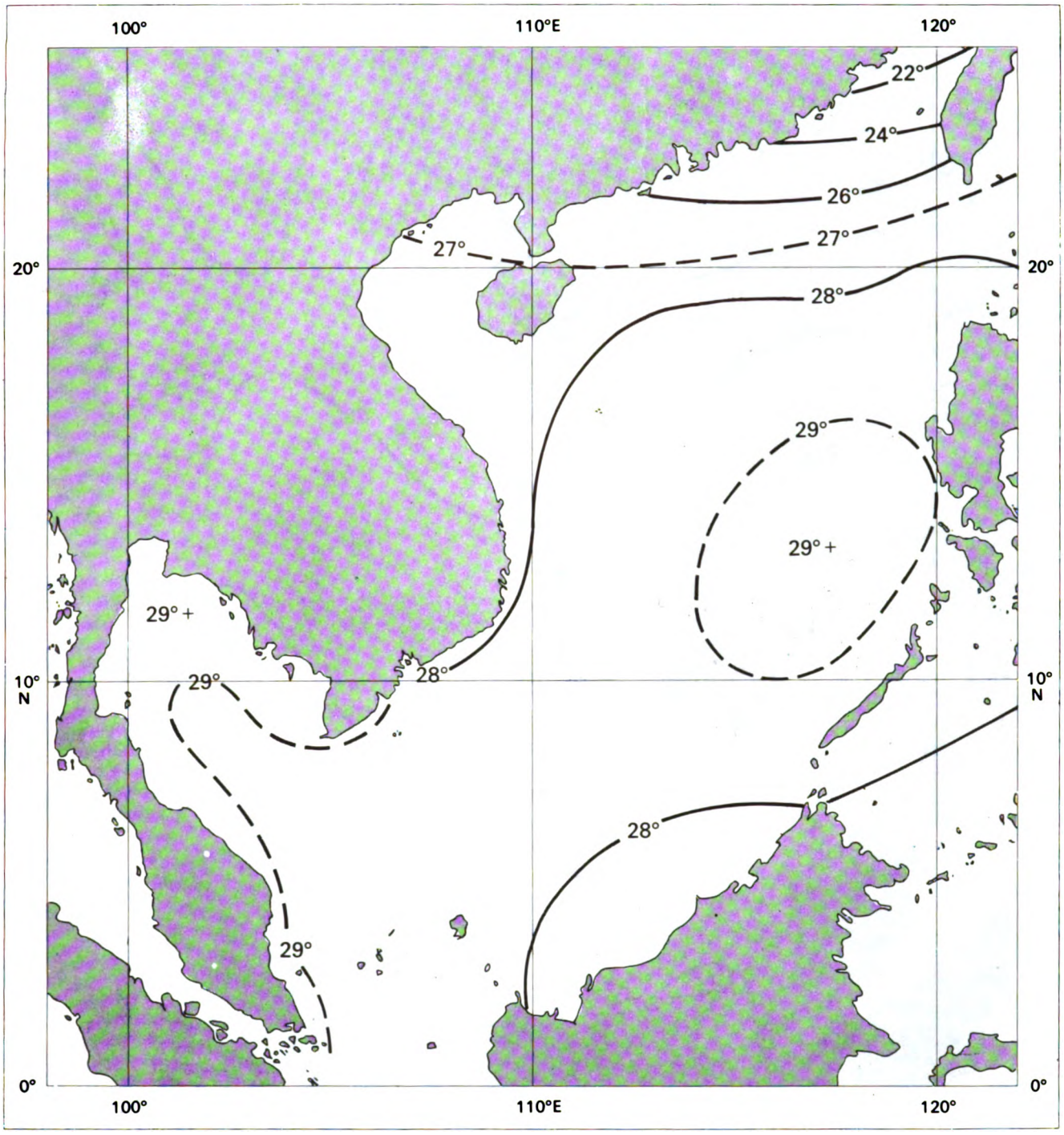

(1.101.2) Average sea surface temperature (°C)—May

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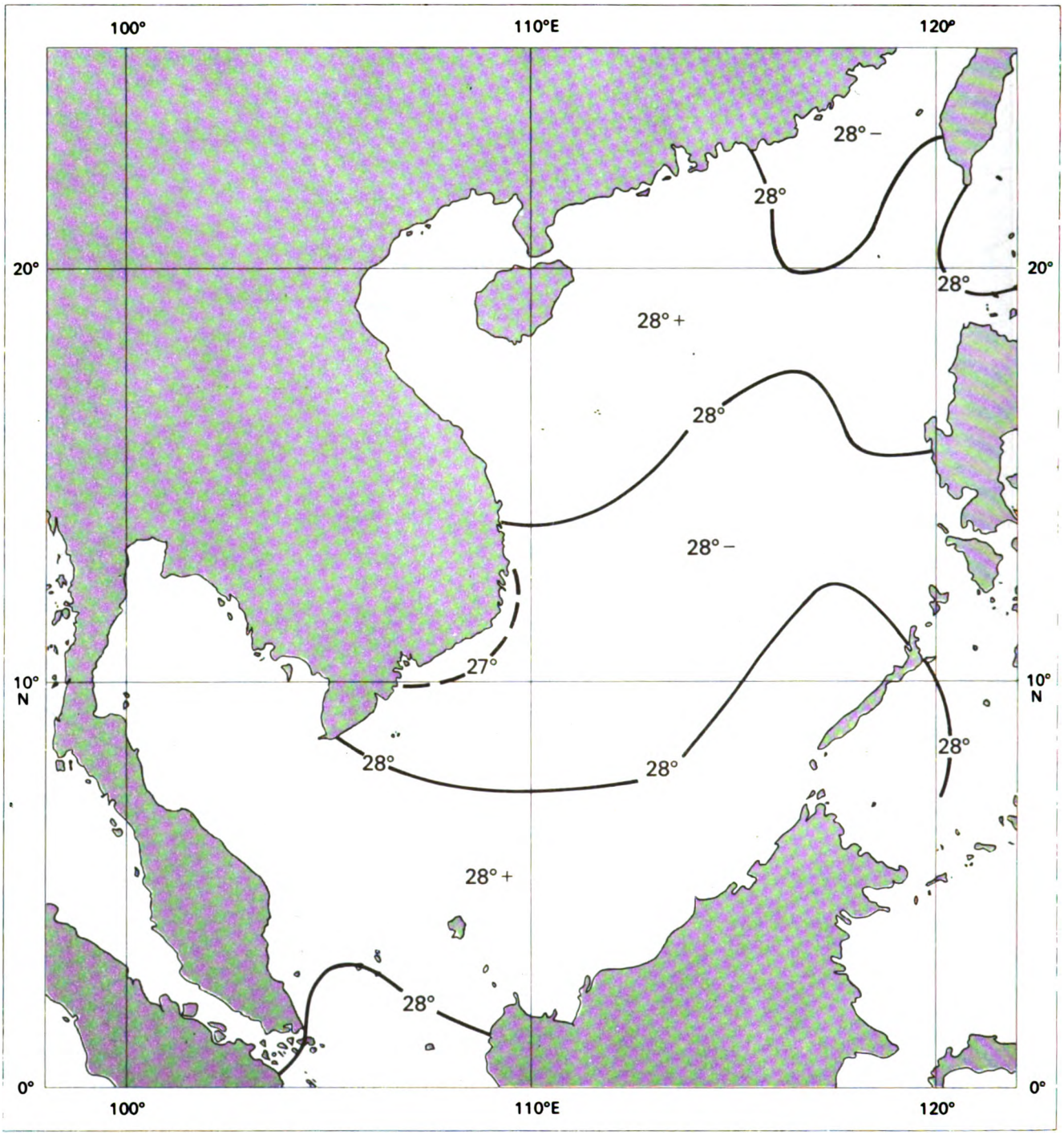

(1.101.3) Average sea surface temperature (°C)—August

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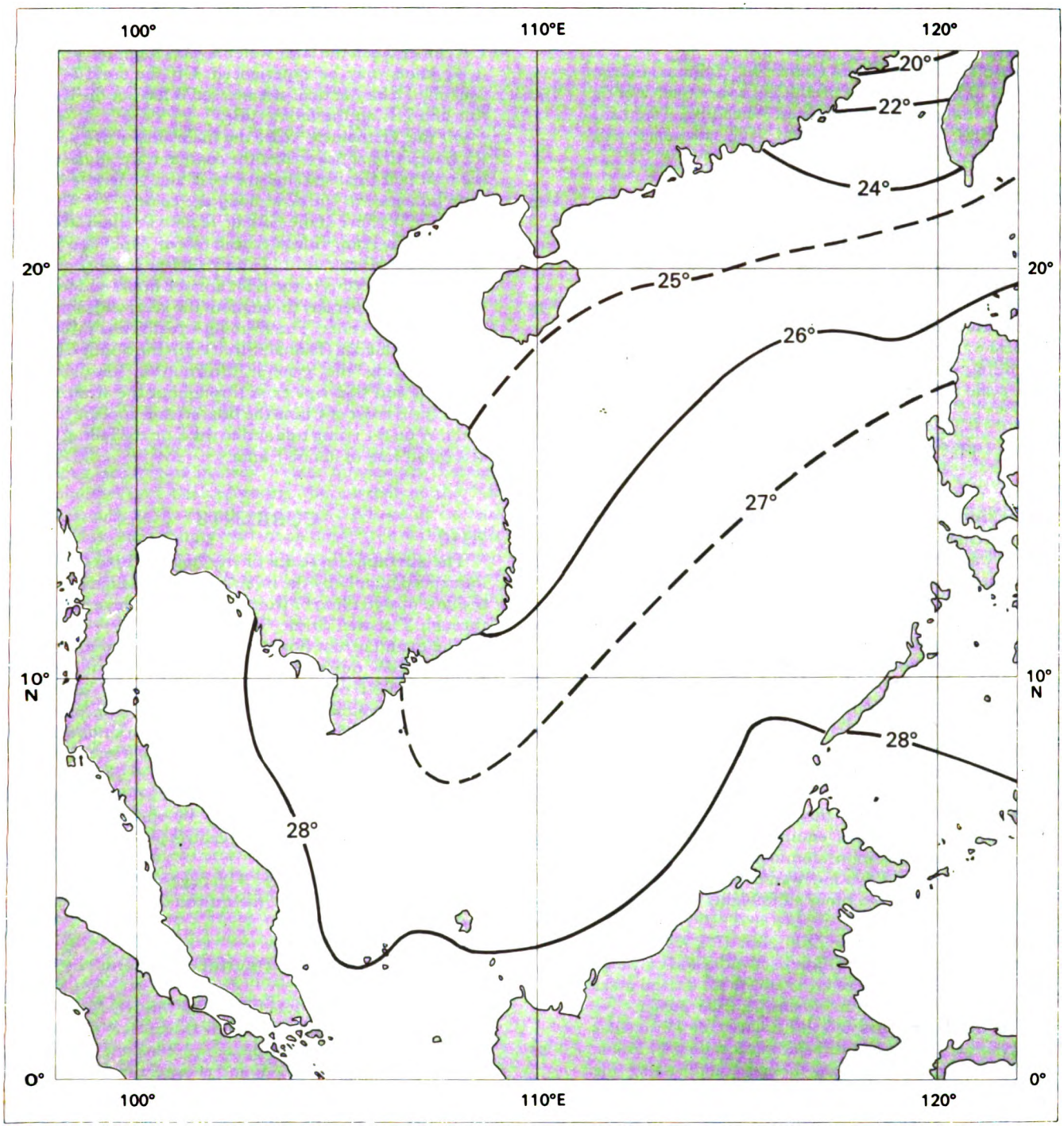

(1.101.4) Average sea surface temperature (°C)—November

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form in the area. These give off a bluish, greenish or silver light and are especially responsive to mechanical agitation.

In open waters the 'milky sea' type of display is the most common at any time of the year. 'Phosphorescent wheels' have been reported but are a much rarer occurrence.

1.106

Sonic fish. The South China Sea contains a large number of fish capable of producing a variety of sounds over a range of frequencies. Toadfish, sunfish, demoiselles, croakers, scorpion fish, snappers and catfish are the most common source.

1.107

Whales and porpoises are found in the South China Sea. The whales are the humpback and finner with lengths varying between 12 and 20 m. Porpoises usually inhabit the coastal waters of the N region rather than the open sea.

1.108

Plankton life is prolific and evenly distributed in tropical waters. This results in a marked absence of fish swarming, with no large concentrations of fish and no large scale migration in search of food.

TIDES AND TIDAL STREAMS

1.109

The tides in the area covered by this volume are due to the oscillations of the Pacific Ocean which result in a flow of water to and from the Asian mainland. The tidal wave enters the area through Luzon Strait and advances rapidly in a SW direction across the South China Sea. Off the Paracel Islands a branch of the wave turns N to circulate anti-clockwise in the Gulf of Tonkin, while the main wave continues S towards Peninsular Malaysia. In the vicinity of 7° N the wave bifurcates, one branch turning N into the Gulf of Thailand and the other SE into the Java Sea.

The tides in the area covered by this volume are mainly diurnal, giving usually one high water and one low water in a lunar day. However the tidal characteristics vary with the astronomical conditions and during the period of equinoxes the semi-diurnal component becomes more dominant, which results in two high waters and two low waters in a lunar day but with inequalities in the times and heights of successive high and low waters.

Co-Tidal Atlas, South East Asia (NP 215) gives further information in the form of co-tidal and co-range charts, for use in offshore areas and those coastal areas which are not included in *Admiralty Tide Tables*.

The tidal streams off the E coast of Peninsular Malaysia are weak, the rate seldom exceeding 1½ knots, and they generally set S along the coast on the rising tide and N on the falling tide. The monsoonal currents are strong and dominate the flow in offshore waters such that the tidal effect is marked. When the streams and current flow in the same direction, rates of 3 to 3½ knots may be expected. In the mouths of rivers, strong tidal streams run with rates of 2 to 3 knots setting in and out of the river. After heavy rain the rate and duration of the out-going stream will be increased.

In the Gulf of Thailand the main S-going tidal stream of the South China Sea meets the W shore of the gulf in the vicinity of 7° N. Here the stream divides, one half setting N along the coast of Thailand and the other S along Peninsular Malaysia. To the N of 7° N the N-going set is associated with the rising tide and to the S with the falling tide. On the E side of the gulf the stream appears to set S on the rising tide and N on the falling tide. The streams run for about 12 hours in each direction but their duration is subject to large variations.

In the Mekong Delta, the river water level is low from January to June when rates of up to 2 knots may be expected on the out-going stream, while from July to December when the river water level is high, rates of up to 4½ knots may be experienced. Off the coast of the Mekong Delta the tidal streams set WSW on the rising tide and NE on the falling tide.

Off the Vietnamese coast the main tidal wave across the South China Sea strikes the coast at right angles and the resultant tidal streams are weak and generally have little influence in the flow along the coast.

Off the W shore of the Gulf of Tonkin the tidal stream sets N on the rising tide at a mean rate of 1 knot and S on the falling tide at a rate of 1½ knots. Off the N shore of the gulf the stream runs to the E for about 8 hours and to the W for 16 hours per day throughout the year, with a mean rate of ½ to 1½ knots. The E-going stream runs through Qiongzhou Haixia (Hainan Strait) into the South China Sea following the general direction of the shore. Overfalls and tide-rips exist throughout the strait.

Off the S coast of China the tidal stream appears to set to the W on the rising tide and to the E on the falling tide at a mean rate of about 1 knot.

CURRENTS

1.110

The **surface currents** of the South China Sea are influenced mainly by the monsoon winds which control the flow of water into or from the Sulu Sea, Java Sea and through T'ai-wan Strait.

The main current flows on the W side of the region and sets SW during the NE Monsoon (October to March) and NE on the SW Monsoon (May to August). During the regime of either monsoon the appropriate current has a high constancy but some variations, and occasionally even reversals may occur with irregularities in the monsoon.

Over the E part of the area currents are much more variable being controlled largely by the positions of gyres which are common in the central part of the South China Sea in all seasons.

Diagrams 1.111.1 to 1.111.4 on pages 24 to 27 indicate the predominant currents, their mean rates, constancies and seasonal variations.

1.111

Monthly variation of surface currents in the South China Sea.

January (Diagram 1.111.1). With the NE Monsoon firmly established over the South China Sea, the main current runs with a high degree of constancy. Water enters the area from the NE and is generally SW-going at a mean rate of ½ to ¾ knot until deflected S near the coast of central Vietnam, where dangerous onshore sets may be experienced. In this region the flow is augmented by a broad current setting NW then W from the Sulu Sea at a mean rate of about ½ knot. The combined flow sets S along the coast of Vietnam from 16° N to Mui Dinh (11° 22′ N, 109° 01′ E), at a mean rate exceeding 1½ knots which, when the monsoon is strong, may increase to 4 knots in the axis of flow a few miles offshore. S of Mui Dinh the current recurves SW broadening but maintaining a rate of 1 knot to close Peninsular Malaysia S of 6° N, where it is again deflected S and SSE into the Java Sea.

February and **March.** With the NE Monsoon

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gradually weakening, the main SW current slowly declines; by mid-March the mean rate off central Vietnam is ½ knot, although occasional NE gales may increase the rate to 3 knots, and more variability is apparent. The current is still reinforced by water from the Sulu Sea, most of which now takes a more N'ly track leading to the formation of a counter-clockwise gyre, which persists well into April near 15° N off central Vietnam.

April (Diagram 1.111.2). A month of transition between monsoons, the predominant flow through T'ai-wan Strait becomes NE. A residual SW-setting current along the W side of the South China Sea is still maintained for much of the month however by water from the Sulu Sea. Some surface water from the left flank of the S-going current off Peninsular Malaysia recurves E and then N, merging with the water of Sulu Sea origin to produce a counter-clockwise eddy near 5° N. Thus for much of April, an anti-clockwise pattern of surface water movement prevails over the area. Mean rates are generally ¼ to ½ knot, but there is considerable variablity, particularly in the zone between N- and S-setting currents. Towards the end of the month, NE sets become more frequent off the coast of SE Vietnam between Mui Vung Tau and Cap Varella (12° 54′ N, 109° 28′ E).

May. The SW Monsoon over the S half of the South China Sea begins in May. Water now enters the area from the Java Sea, reversing the current of the NE Monsoon. As the month progresses a NE-going current becomes increasingly evident on the W side of the South China Sea. Mean rates initially less than ¼ knot, increase slowly to ½ knot from Peninsular Malaysia to the coast of central Vietnam. Currents elsewhere are variable but late in the month E sets are favoured.

June. The SW Monsoon extends over the whole South China Sea and from then until September, sets between N and E predominate over the area covered by this volume. An inflow of water from the Java Sea sets N and then NE, S of Vietnam, and finally curves E or even SE to leave the area between 5° N and 15° N. The mean rate of this broad and fairly constant flow is about ½ knot, but off Peninsular Malaysia it is N-going at ¾ knot, and off S Vietnam between Mui Vung Tau and Mui Dinh, ENE-going at ¾ knot and occasionally 1½ knots. Over the N half of the area currents are weak and variable with a slight preference for NE drifts except for a more marked ENE inshore current E of Macau, where a mean rate of ¾ knot increases to 2 knots with strong W winds.

July (Diagram 1.111.3) and **August.** Except for the E coast of Vietnam, these months are similar to June but with an overall increase in current rates. The main axis of the ENE-going current S of Vietnam is transferred a degree or so S and mean rates increase to ¾ to 1¼ knots. Currents in excess of 3 knots have been reported between 10° N and 15° N after strong SW winds. In late June or early July a marked inshore SSE- and S-setting counter current becomes established along the coast of Vietnam as far S as Mui Dinh, where it meets and joins the main ENE-going flow. Its mean rate is ½ to ¾ knot but rates exceeding 2 knots have been reported. A slight increase in NE sets over the N part of the area occurs in August but there is still much variability.

September. There is still a net flow of water from the Java Sea but mean rates of the N- and NE-setting currents slowly diminish to ½ knot off Peninsular Malaysia and ¾ knot near SE Vietnam. Also the pattern distorts, producing a short-lived clockwise eddy E of the N-going Malaya Coastal current. During the month the boundary between SW and NE Monsoons moves S over the N part of the area. Much of the weak NE-going surface flow in this region is therefore turned W and then S, forming a counter-clockwise eddy off central Vietnam and increasing the S-going coastal current to a mean rate of 1 knot and at times nearly 3 knots.

October (Diagram 1.111.4). During the month this latter eddy becomes more marked. With the intensifying NE Monsoon, the surface water now begins to flow SW through T'ai-wan Strait, rounding S China and closing with the coast of Vietnam near 16° N at a mean rate of ¾ to 1 knot. Here it reinforces the S-going inshore current, increasing the mean rate to nearly 2 knots. Between Pulau Gambir (13° 37′ N, 109° 21′ E) and Mui Dinh, rates of 4½ knots have been recorded and between Mui Da Nang (16° 07′ N, 108° 20′ E) and Mui Dinh dangerous onshore sets may be experienced. To the S of Mui Dinh, S'ly drifts reappear, although the broadening current is rather variable and weak, being mostly less than ½ knot, and some water is lost from the left flank into the eddy. A clockwise eddy appears intermittently off Peninsular Malaysia so that weak N'ly sets are probable near the coast.

November and **December.** The surface pattern of water movement is generally anti-clockwise, with water entering the South China Sea from the Sulu Sea and through T'ai-wan Strait and leaving it through Karimata Strait into the Java Sea. To the E of 112° E drifts over the area covered by this volume are mainly N'ly at a mean rate of ½ knot and W of 112° E drifts are S or SSW and slightly stronger. Strong currents along the coast of central Vietnam are maintained and, as in October, dangerous onshore sets may be encountered.

Gulf of Thailand

1.112

The monsoon currents of the South China Sea set across the mouth of Gulf of Thailand, but in the gulf itself currents are thought to be weaker and much more variable. A counter-clockwise flow predominates from October to May and a clockwise drift from June to September. Rates appear to be greatest in the NE side of the Gulf, where currents exceeding 1½ knots have been reported, but the mean rate is probably less than ½ knot.

Gulf of Tonkin

1.113

During the NE Monsoon (September to May) water enters the gulf through Qionzhou Haixia (9.17) with a W-going current at a mean rate of ½ to 3 knots. Mainly W-setting currents, occasionally attaining a rate of 2 knots, occur during this period over the N part of the gulf. From November to May there is also a NW- and N-setting current near the coast of Vietnam from Mui Da Nang as far as Hon Dau (20° 40′ N, 106° 48′ E), its mean rate of ½ knot increasing to 2 knots at times. This water is thought to be removed by a S- and SE-setting broad current through the middle of the gulf, but there is much variability. Between June and August the flow is variable but mainly in a counter-clockwise sense with S and SE sets predominating along the coast of Vietnam. Rates of flow in excess of 1 knot are rare.

Effect of tropical storms on currents

1.114

The region covered by this volume is subject to typhoons N of about 5° N, but the centres rarely track S of 10° N. The prevailing pattern of currents is affected, sometimes considerably, by violent winds accompanying such storms. The current thus produced sets in a general down-wind direction but is deflected to

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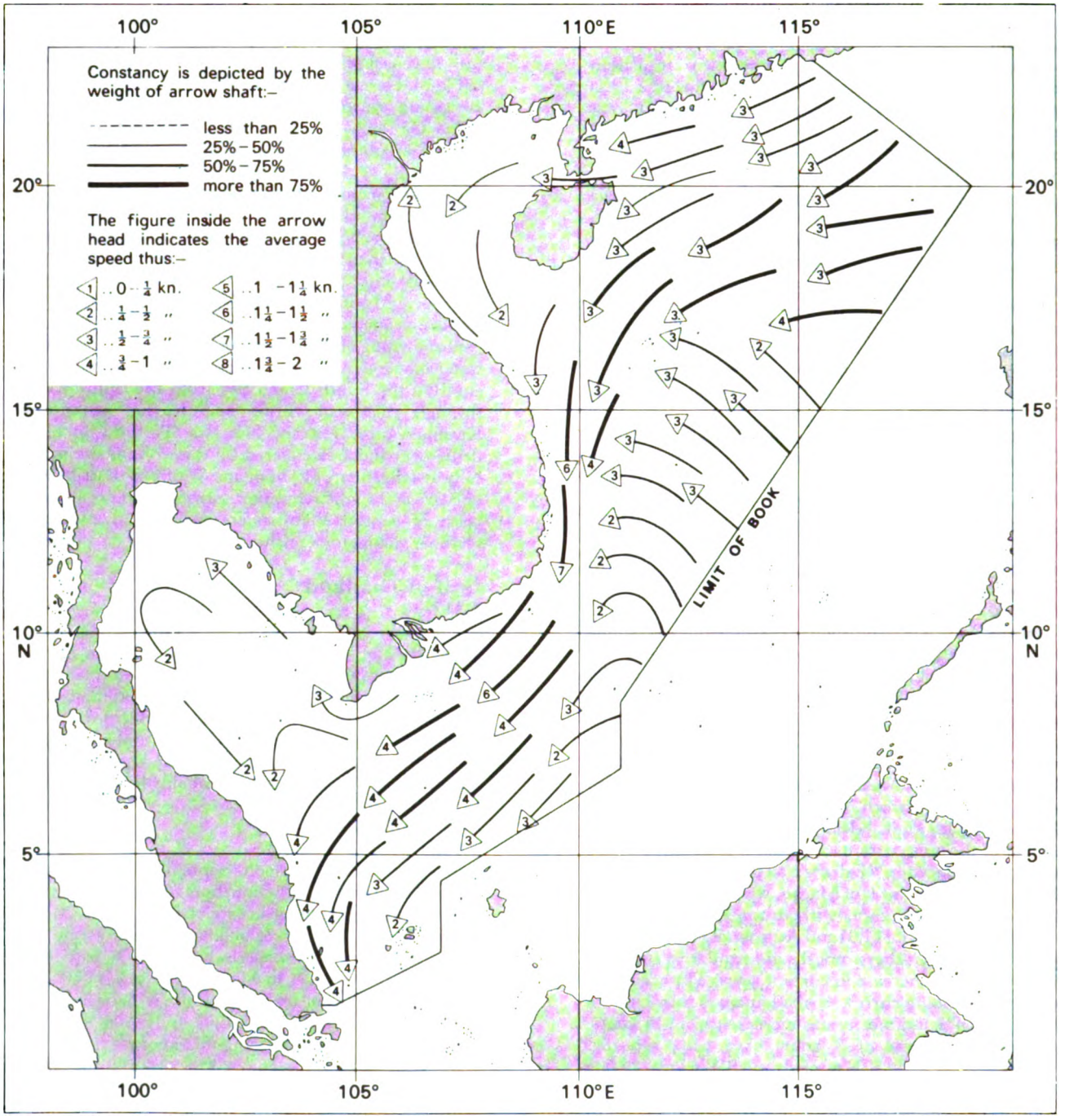
Constancy is depicted by the weight of arrow shaft:–
less than 25%
25% – 50%
50% – 75%
more than 75%
The figure inside the arrow head indicates the average speed thus:–
1 .. 0 – ¼ kn.
2 .. ¼ – ½ ,,
3 .. ½ – ¾ ,,
4 .. ¾ – 1 ,,
5 .. 1 – 1¼ kn.
6 .. 1¼ – 1½ ,,
7 .. 1½ – 1¾ ,,
8 .. 1¾ – 2 ,,
100°
105°
110°E
115°
20°
15°
10° N
5°
LIMIT OF BOOK

(1.111.1) Direction, constancy and average speeds of predominant currents—January

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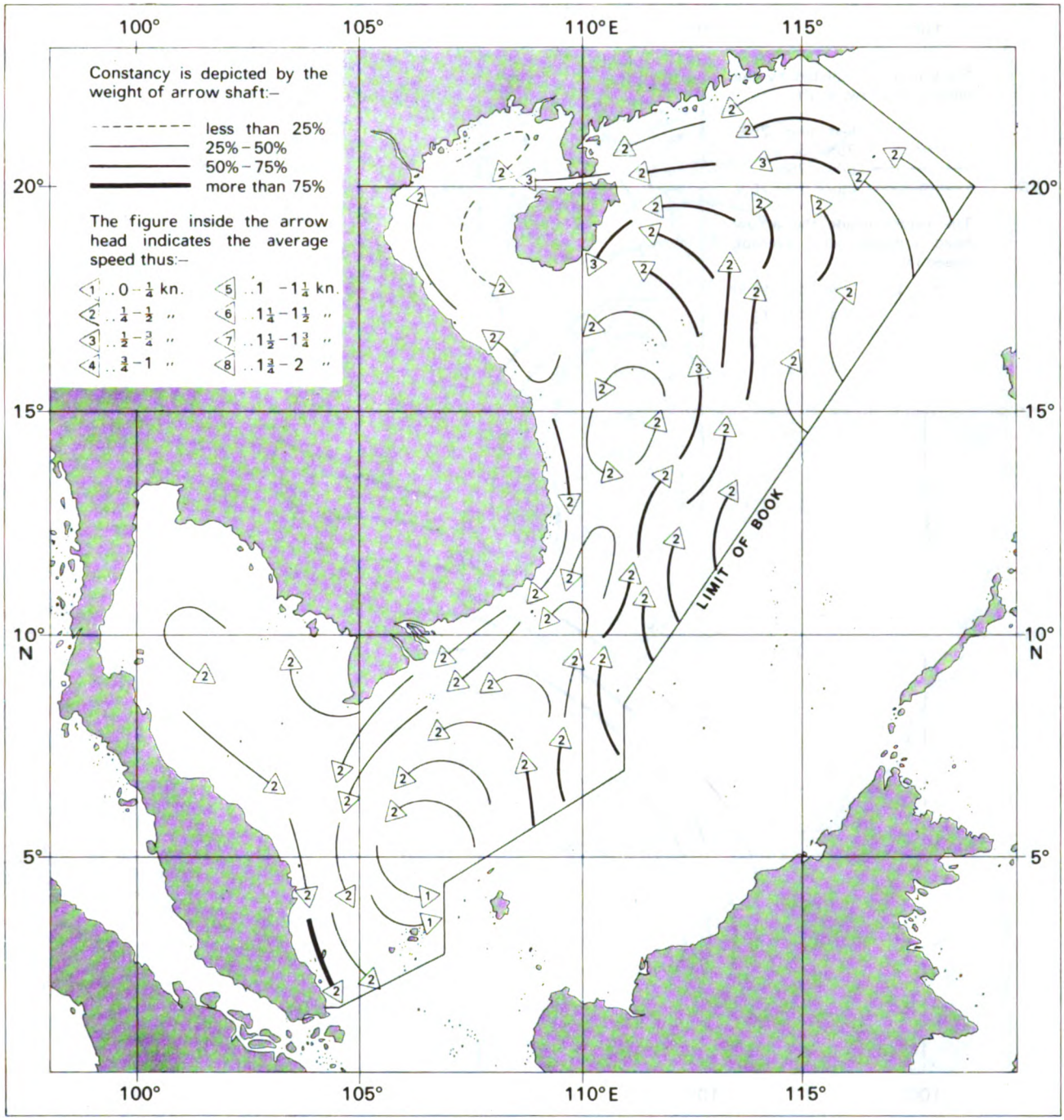
100°
105°
110°E
115°
20°
15°
10° N
5°
Constancy is depicted by the weight of arrow shaft:–
less than 25%
25% – 50%
50% – 75%
more than 75%
The figure inside the arrow head indicates the average speed thus:–
1 .. 0 – ¼ kn.
2 .. ¼ – ½ ,,
3 .. ½ – ¾ ,,
4 .. ¾ – 1 ,,
5 .. 1 – 1¼ kn.
6 .. 1¼ – 1½ ,,
7 .. 1½ – 1¾ ,,
8 .. 1¾ – 2 ,,
LIMIT OF BOOK

(1.111.2) Direction, constancy and average speeds of predominant currents—April

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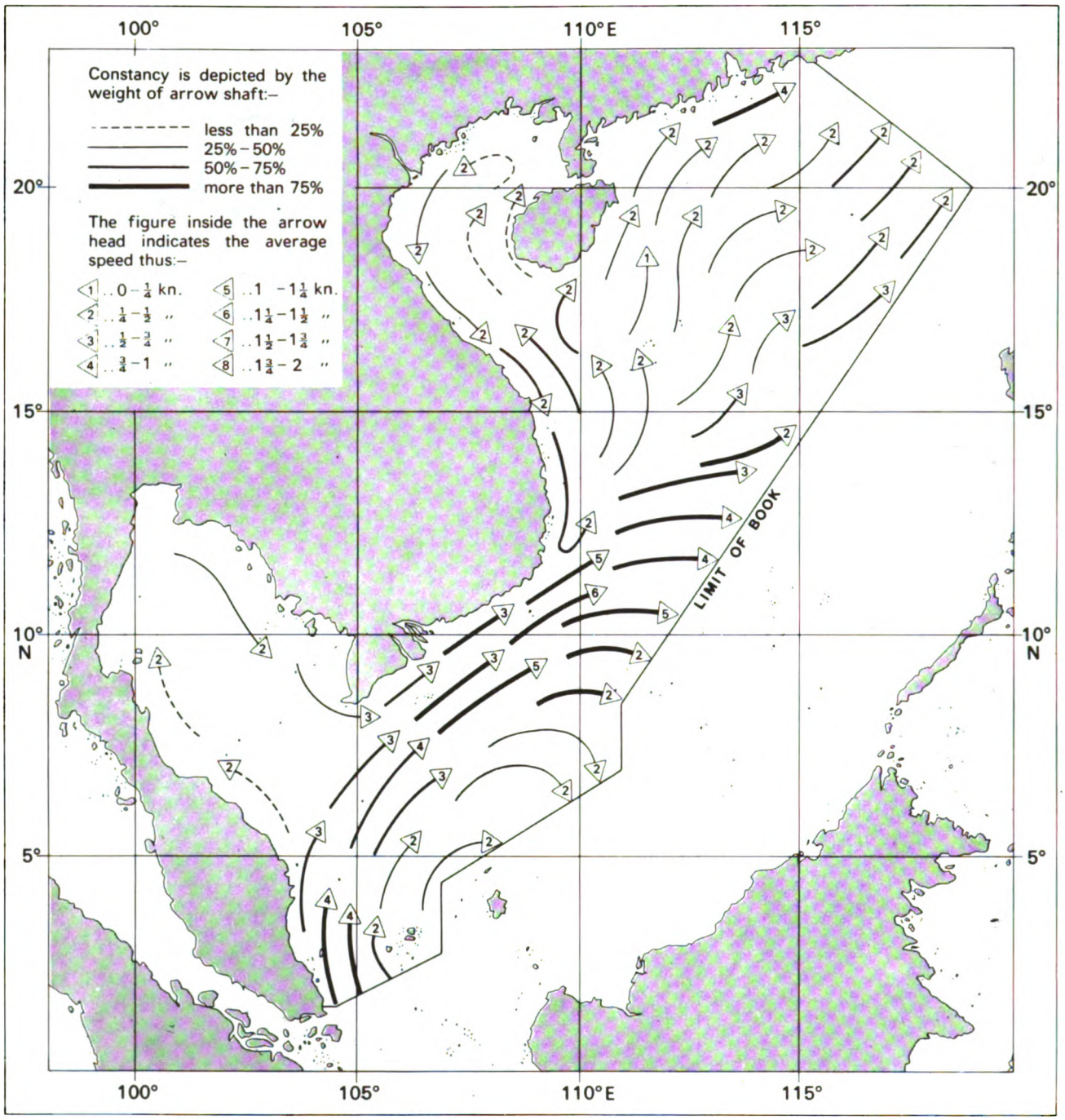
100°
105°
110°E
115°
20°
15°
10° N
5°
Constancy is depicted by the weight of arrow shaft:–
less than 25%
25% – 50%
50% – 75%
more than 75%
The figure inside the arrow head indicates the average speed thus:–
1 .. 0 – ¼ kn.
2 .. ¼ – ½ ,,
3 .. ½ – ¾ ,,
4 .. ¾ – 1 ,,
5 .. 1 – 1¼ kn.
6 .. 1¼ – 1½ ,,
7 .. 1½ – 1¾ ,,
8 .. 1¾ – 2 ,,
LIMIT OF BOOK

(1.111.3) Direction, constancy and average speeds of predominant currents—July

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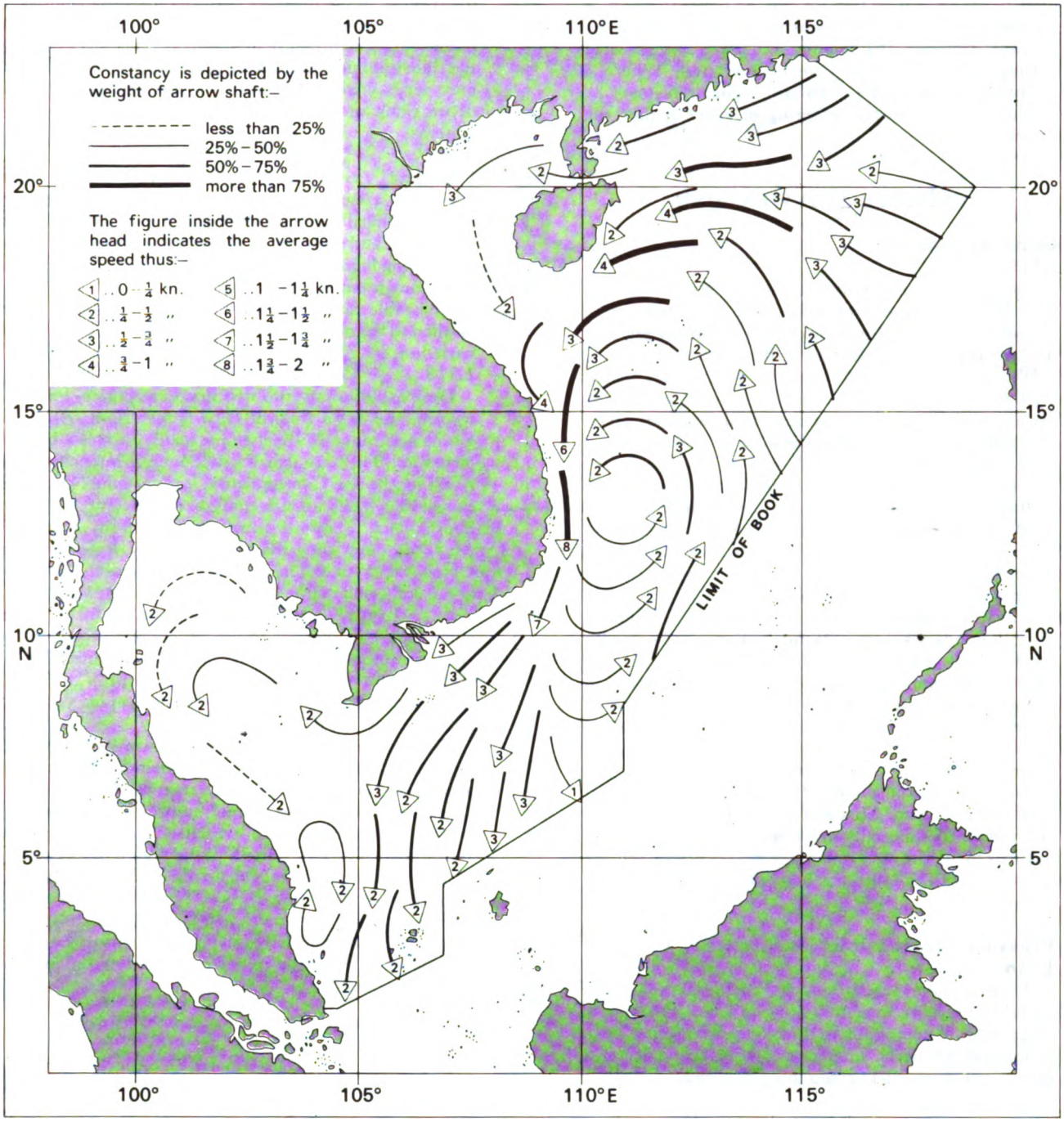
100°
105°
110°E
115°
20°
15°
10° N
5°
Constancy is depicted by the weight of arrow shaft:–
less than 25%
25% – 50%
50% – 75%
more than 75%
The figure inside the arrow head indicates the average speed thus:–
1 .. 0 – ¼ kn.
2 .. ¼ – ½ ,,
3 .. ½ – ¾ ,,
4 .. ¾ – 1 ,,
5 .. 1 – 1¼ kn.
6 .. 1¼ – 1½ ,,
7 .. 1½ – 1¾ ,,
8 .. 1¾ – 2 ,,
LIMIT OF BOOK

(1.111.4) Direction, constancy and average speeds of predominant currents—October

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the right (in the N hemisphere) between 20° and 45°. However, since the current is dependent on the length of time that the wind blows in a particular direction as well as upon the wind strength, the current in most cases does not have time to become fully developed. It is estimated that at wind speeds of 40 knots and over, the wind must blow in the same direction for over 48 hours to produce maximum currents. Thus it is particularly with slow-moving cyclones that strong currents, which may perhaps exceed 2 knots, are encountered. Where a cyclone approaches the coast still higher rates may be produced, owing to the piling up of water against the coastline.

CLIMATE AND WEATHER

General remarks

1.115

The following text should be read in conjunction with *The Mariner's Handbook* (NP 100). Comprehensive monthly averages, frequencies and extremes are given in the climatic tables at the end of this chapter.

Weather reports and forecasts for the area are issued regularly from various transmitting stations, which also broadcast warnings as appropriate. Full details are given in *Admiralty List of Radio Signals Vol 3*, while *Vol 4* gives details of meteorological stations.

The climate is hot, except in the N in winter. Both temperature and humidity are high throughout the year in the S. The temperature is also high in the N in summer while the humidity is a little lower with little seasonal variation. The winter months are comparatively cool and dry N of 20° N.

This is a 'monsoon' region with NE winds in winter and SW winds in summer. Winds of Force 7 or more are rare but more common to E of Hainan Dao (9.1) and off central Vietnam in December. These are due to temporary increases in the NE Monsoon. 'Typhoons' cause a major hazard from time to time as they cross the region N of 10° N from the Pacific. These tropical storms rarely track S of 10° N.

Fog is rare in the S part of the area and visibility is good except in rain. Mist and fog are more frequent to the N of 20° N especially in winter with very low cloud and drizzle at times. Among the driest places are the inner parts of the Gulf of Thailand.

Pressure, depressions and fronts

1.116

There is a fairly regular seasonal change in the average monthly pressure over most of the area. The rise in pressure in winter is due to the large anticyclone which forms over S Siberia. There is a corresponding decrease in pressure in spring to give a low pressure area of about 996 mb over N India in July. These two seasonal pressure systems are large enough to be the dominating influence on the coasts. The seasonal variation of pressure varies according to latitude, being very marked in the N and almost negligible towards the equator.

Diagrams 1.116.1 to 1.116.4 on pages 29 to 32 show the reversal of the pressure pattern for winter (January) to summer (July) corresponding with the two monsoons. The pressure gradient becomes slack during the transition periods in May and October. The pattern may vary considerably from the average due to local depressions or to changes in the seasonal pressure systems.

1.117

Diurnal Variation of Barometric pressure. Apart from the irregular variations of pressure, there is a regular diurnal variation with maxima at 1000 and 2200 local time and minima at about 0400 and 1600. This underlying fluctuation has an amplitude of about 3·0 mb from maximum to minimum.

The table below gives the corrections in mb to be applied to the observed pressure to allow for the diurnal variation.

1.118

Depressions fall into two main categories, namely, *tropical* and *extra-tropical*. The latter originate over S China and move ENE; they normally possess a frontal structure. They are usually shallow but intensify after reaching the sea. Consequently, it is only the N parts of the area which are affected to any extent by these depressions. They are most frequent from March to May, although they may occur at any time between October and June. The cold fronts of these depressions are usually well marked but most warm fronts are weak.

In contrast, tropical depressions, which when sufficiently intense are termed typhoons, originate in tropical waters in the vicinity of the Philippine Islands, and move W or NW across the region to N of 10° N. They cause large departures from the average values of pressure and wind.

Besides the fronts associated with extra-tropical depressions, another frontal phenomenon affecting the area is the Inter-tropical Convergence Zone (ITCZ). This lies N of the area in mid-summer, then moves S during September and reaches S Malaysia by November. The ITCZ lies S of the region in December to April and then moves N again during May. By June, it is once more N of the region. The ITCZ is a rather diffuse zone of varying width, separating the trade-winds of the N and S hemispheres. Dense cloud and outbreaks of thundery rain are encountered along the zone boundaries.

Typhoons

1.119

The name 'typhoon' is applied to the intensive

Local time	00	01	02	03	04	05	06	07	08	09	10	11
0° - 10° N	−0·6	−0·1	+0·4	+0·7	+0·8	+0·7	+0·2	−0·3	−0·9	−1·3	−1·4	−1·2
10° - 20° N	−0·5	−0·1	+0·4	+0·7	+0·7	+0·5	+0·1	−0·4	−0·8	−1·2	−1·2	−1·0

Local time	12	13	14	15	16	17	18	19	20	21	22	23
0° - 10° N	−0·7	0·0	+0·7	+1·3	+1·5	+1·5	+1·1	+0·5	−0·2	−0·7	−1·0	−0·9
10° - 20° N	−0·5	+0·1	+0·7	+1·2	+1·3	+1·2	+0·9	+0·3	−0·2	−0·7	−0·9	−0·8

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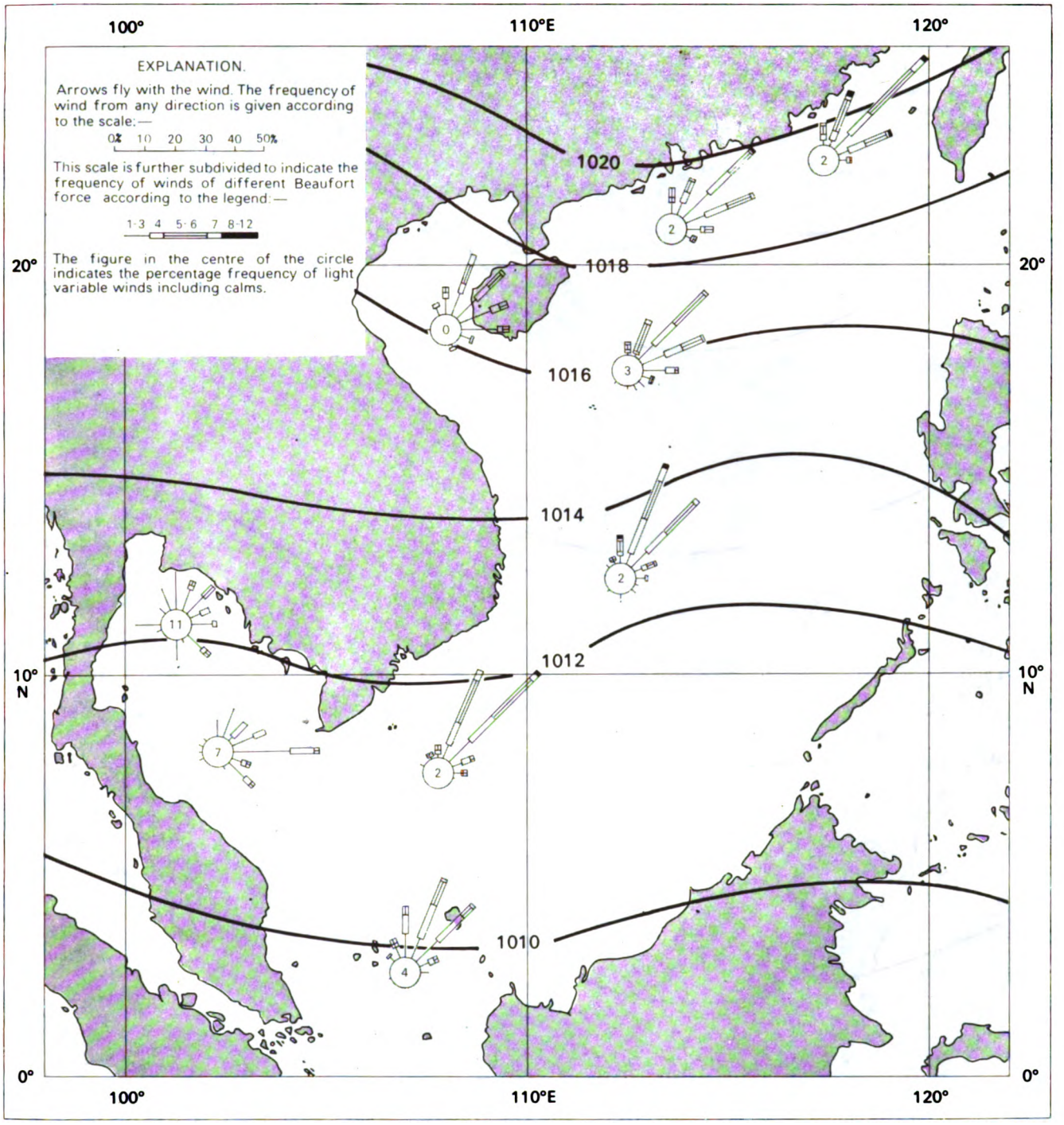

(1.116.1) Average pressure (mb) at mean sea level and wind roses—January

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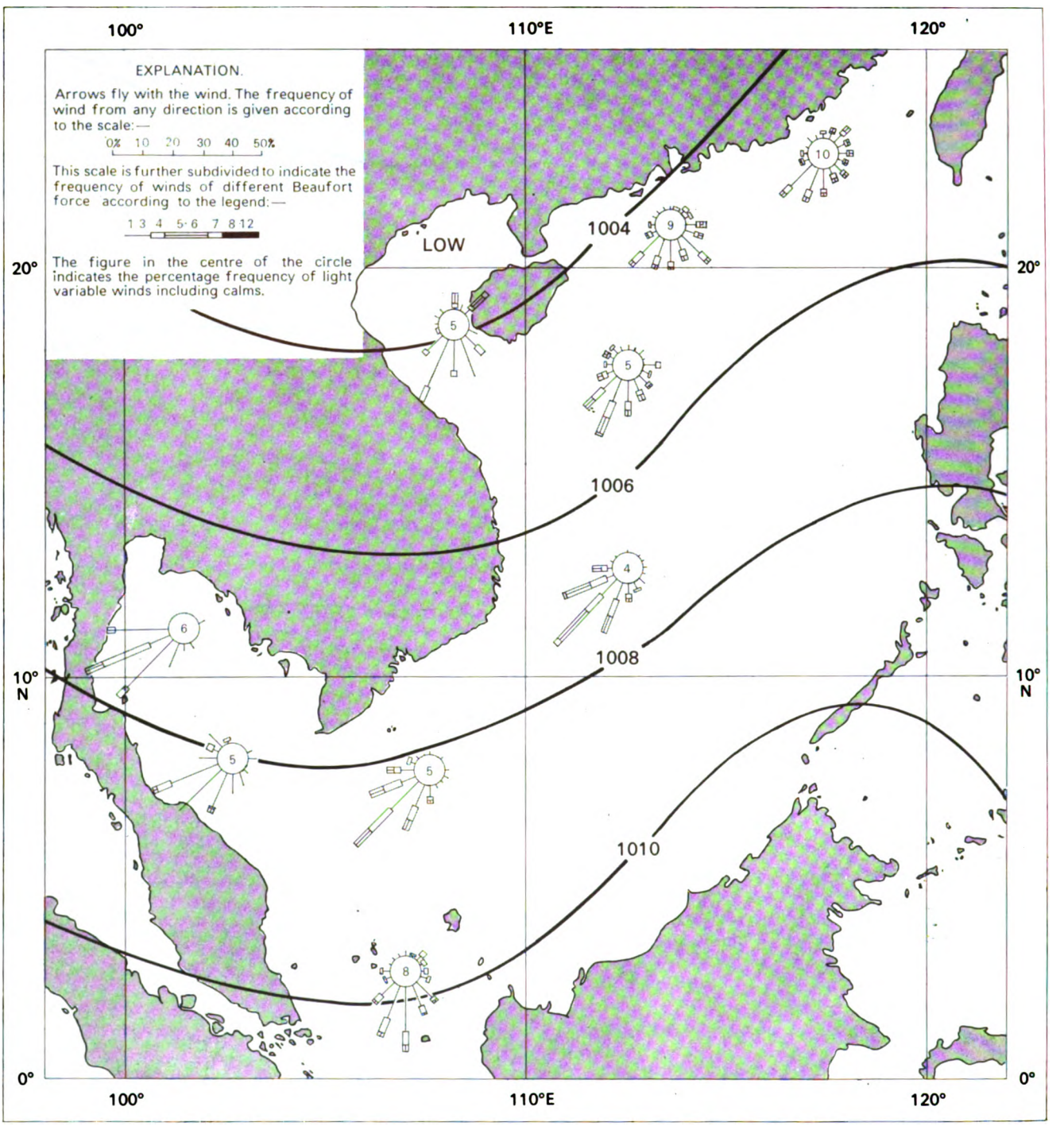

(1.116.2) Average pressure (mb) at mean sea level and wind roses—July

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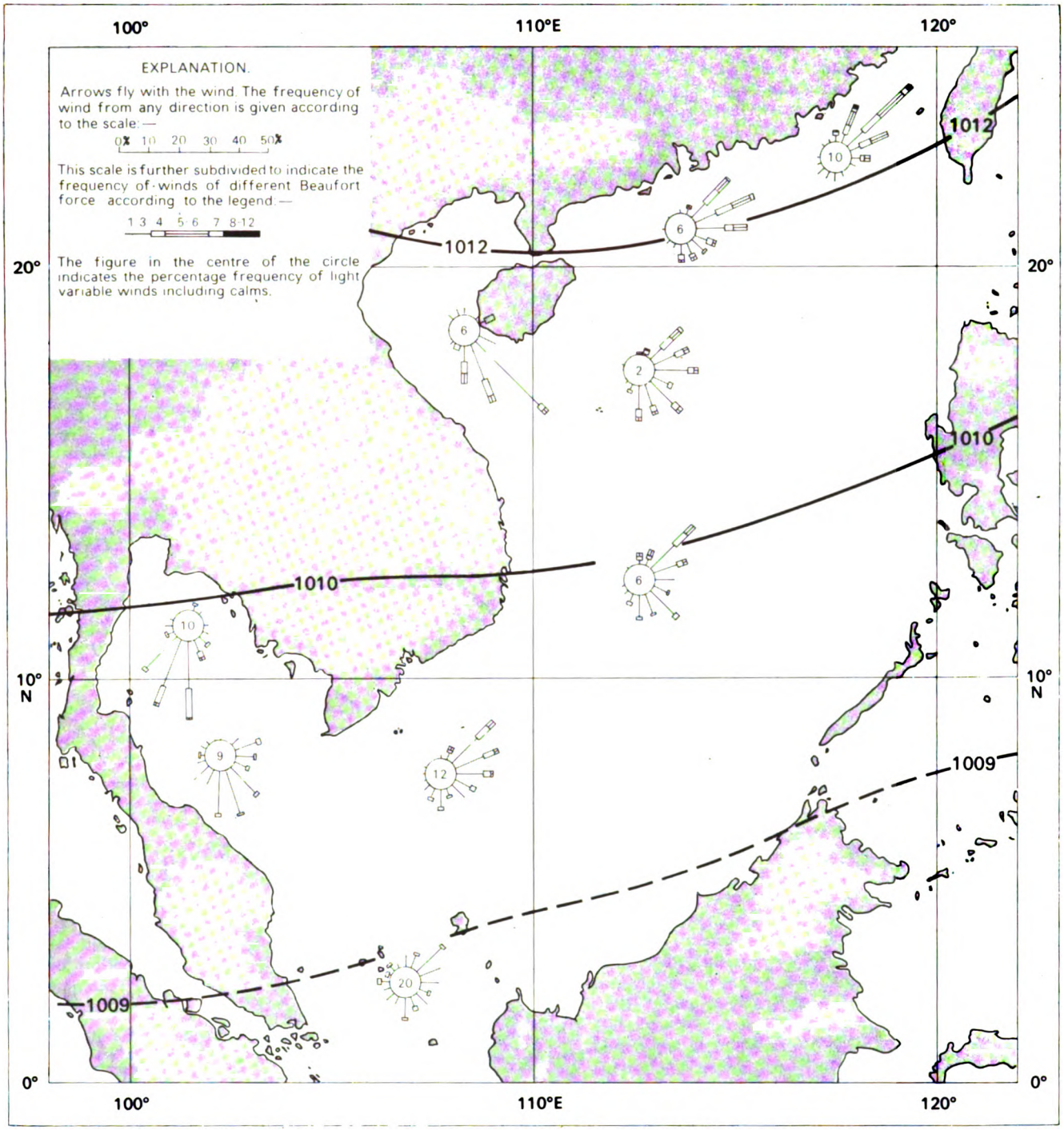

(1.116.3) Average pressure (mb) at mean sea level and wind roses—April

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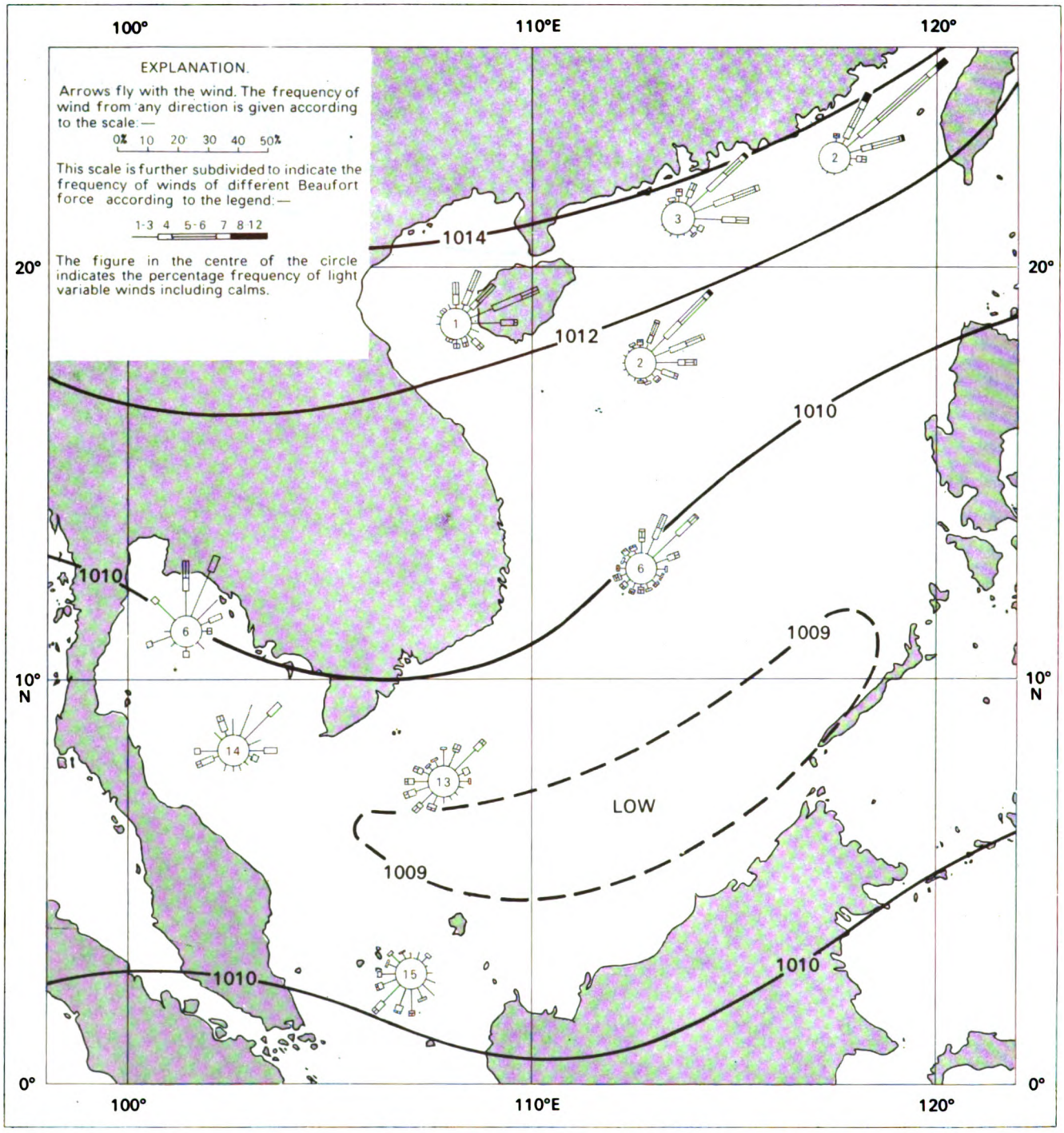

(1.116.4) Average pressure (mb) at mean sea level and wind roses—October

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cyclonic disturbances of tropical origin which occur in this region. See 'Tropical Storms' in *The Mariner's Handbook* (NP 100). Warnings may be expected to indicate the severity of each storm, but a disturbance may intensify rapidly and so pass from one category into the next.

1.120

Region of origin of typhoons. Most typhoons originate E of the Philippines, but some originate farther W in the South China Sea. There is an annual movement of the mean latitude of the zone of origin from 6° N in March to 16° N in August. Also there is a longitudinal movement in the region of origin from about 160° E in January to about 140° E in June. The source region moves NW in spring and retreats SE in the autumn.

1.121

Track and frequency of typhoons. The average track also has a seasonal variation, being farthest S in winter, and farthest N in summer. Most of the tracks fall into two main groups. Those which move W or NW, but later curve towards N and finally NE. Those in the second group continue to move W or NW, sometimes even SW, with recurvature.

Most of the typhoons recurve E of the Philippines and T'ai-wan, so that it is the second group which affects the area covered by this volume.

Typhoons are rare in winter but the frequency increases somewhat more in May to N of 20° N, and reaches a maximum of one per month during July to September, then decreases. The total number occurring farther S is less, and the maximum frequency is in November.

The following table shows the number of typhoons recorded within the Hong Kong zone of responsibility during ten years between 1968 and 1977.

Month	*Latitude*	
	5° to 10° N	10° to 15° N
January	0	1
February	0	0
March	0	0
April	0	0
May	0	1
June	0	0
July	0	0
August	0	0
September	0	3
October	0	3
November	5	4
December	2	2
10 year total	7	14

Month	*Latitude*	
	15° to 20° N	N of 20° N
January	0	0
February	0	0
March	0	0
April	0	0
May	1	1
June	3	4
July	7	11
August	7	14
September	8	12
October	9	6
November	4	2
December	1	0
10 year total	40	50

1.122

Diagrams 1.122.1 to 1.122.4 on pages 34 to 37 show tracks of typhoons. These tracks indicate the most likely paths, but tropical storms can move erratically and occasionally may even effect a complete loop. Although typhoons have been known to move W near the S coast of Vietnam, appreciable penetration of the Gulf of Thailand is rare. None have been reported on the coasts of Malaysia, and few are known near the Isthmus of Kra which joins Peninsular Malaysia to the mainland N.

The speed of movement of typhoons varies considerably even in different parts of a single track. Usually it is between 5 and 15 knots, but may be even less in the early stages of development, and during recurvature. The speed increases to 25 knots or more after recurvature.

If the corrected barometric pressure is 3 mb or more below the normal, there is the threat of a tropical depression or a typhoon, and preparation should be made for appropriate avoiding action. The normal pressure for the time of year can be deduced from the tables and diagrams. For diurnal corrections see 1.117.

Additional information on typhoons, including indications of their existence or approach, and rules for avoiding them is given in *The Mariner's Handbook*. The effects of typhoons on currents are discussed under 'currents'.

Winds and gales (20–100 miles from the coast): monsoons

1.123

The seasonal variation of pressure causes regular seasonal winds or monsoons. The term monsoon is applied equally to a season or to the prevailing wind. NE winds prevail over most of the area in winter and the SW Monsoon predominates in summer though it is less regular than the NE Monsoon. Short periods of variable winds in spring and autumn separate the two monsoons. The two monsoons are not very well marked off the S part of Peninsular Malaysia but become more regular towards the N part of the area covered by this volume.

Diagram 1.123 on page 39 illustrates the frequency of winds of force 7 or more during December and May, when maximum and minimum frequency occurs.

Significant variations from the average winds occur in the vicinity of tropical storms and other depressions. Seasonal intensification of the continental highs and lows beyond the normal, increases the wind strength consideraby over the N sector at times.

Off coast of Peninsular Malaysia. Here the NE Monsoon becomes established during November or December, at an average of force 4 in the S and force 5 farther N. The wind strength varies from light to fresh and may increase to force 6 or 7. Reports of force 7 occur in 1 per cent of observations for most of this season and up to 2 or 3 per cent in December.

The SW Monsoon operates from May to October and may reach force 6 at times over the open sea, but the wind is lighter and less regular near the coast. The average over the area is force 3 or 4. During October, the winds become variable before the onset of the NE Monsoon.

Although, during the SW Monsoon, sustained winds of force 7 are rare, squalls, locally known as *ribut*, in which gale force may be reached temporarily, are fairly common. The worst type is the *arch squall*, which is preceded by clouds rising from the horizon in the form

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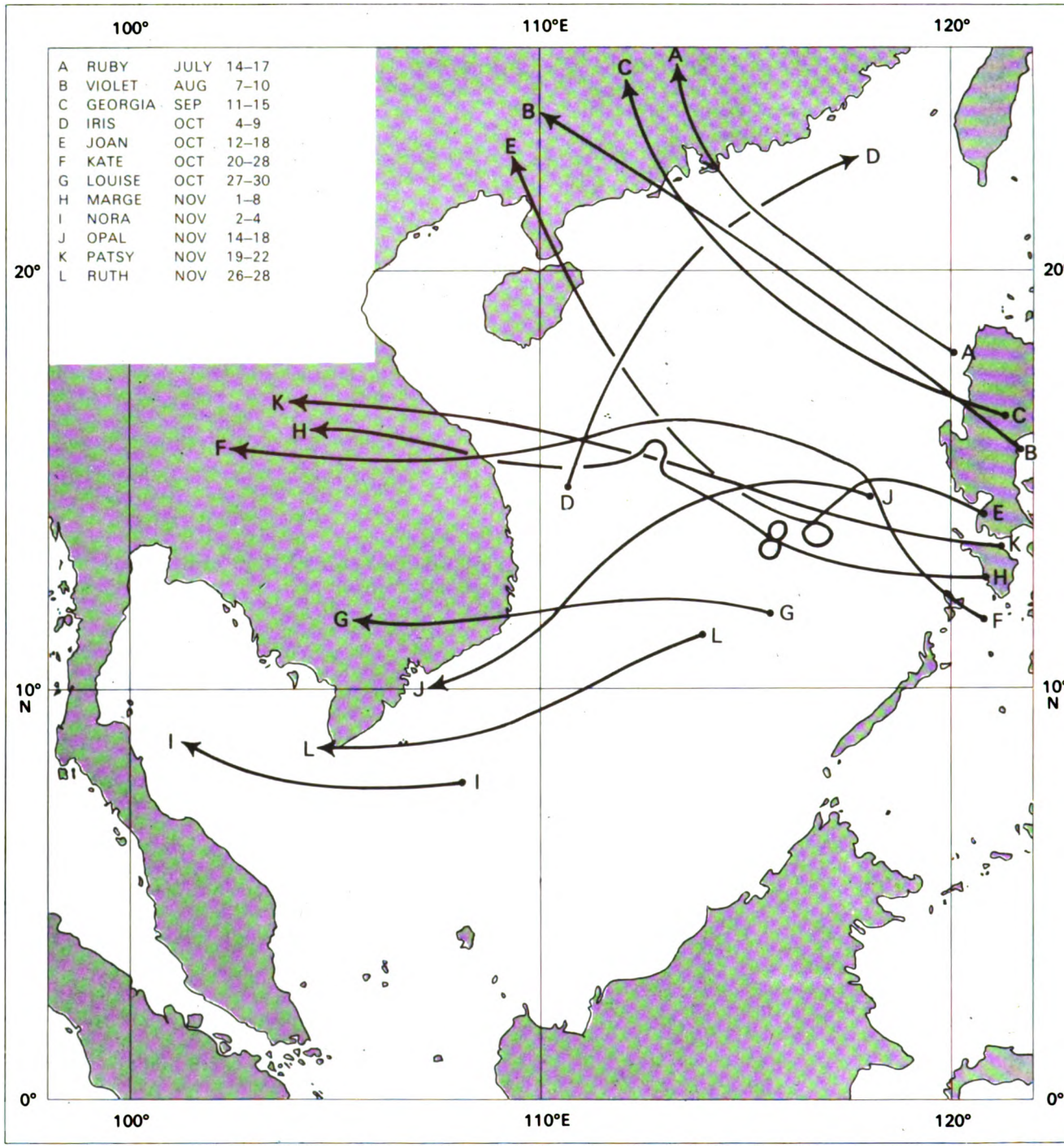

(1.122.1) Tropical storms recorded in the area during 1970

Note: Most of these storms originated in W Pacific and reached TYPHOON intensity at some stage along the track

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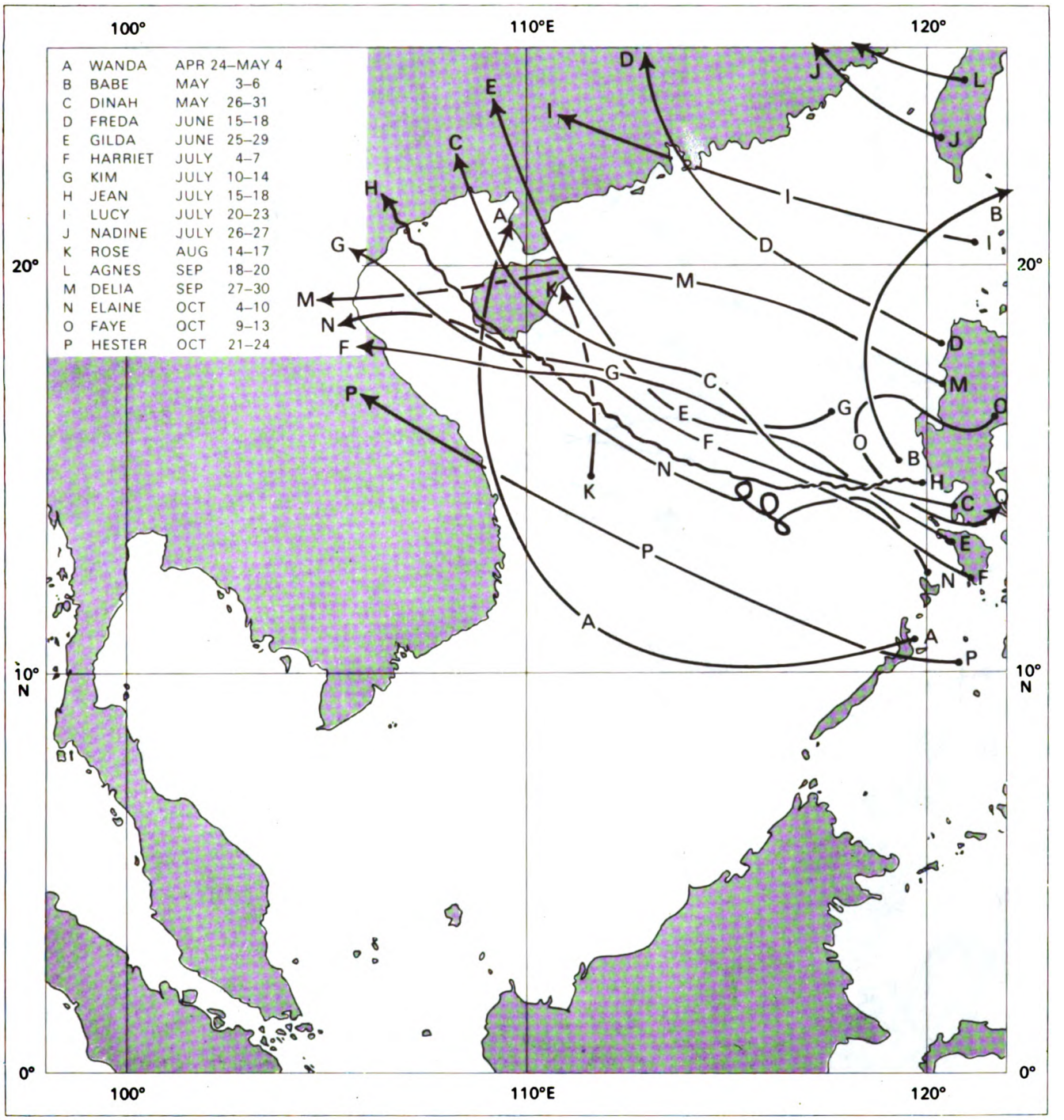

(1.122.2) Tropical storms recorded in the area during 1971

Note: Most of these storms originated in W Pacific and reached TYPHOON intensity at some stage along the track

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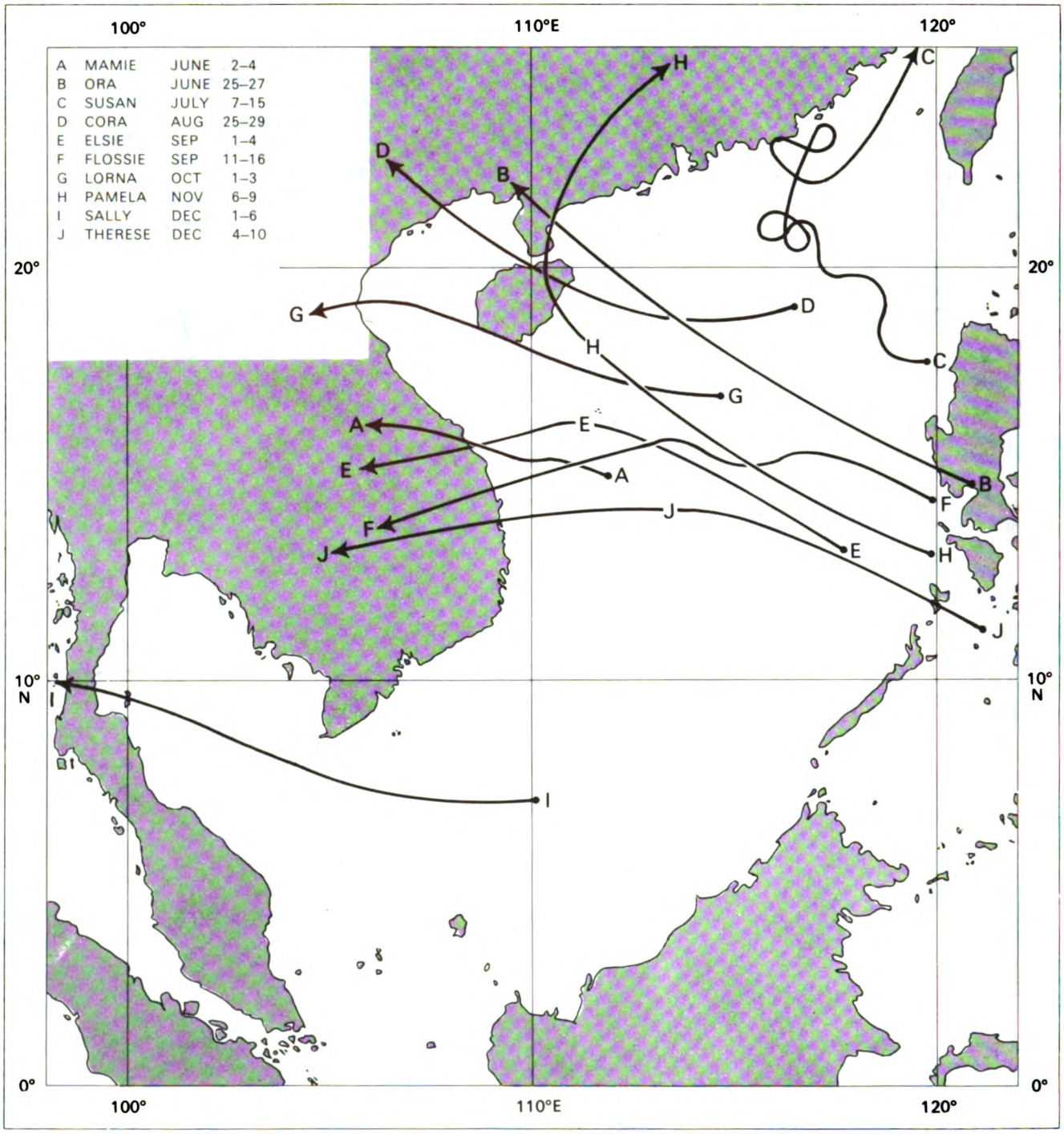

(1.122.3) Tropical storms recorded in the area during 1972

Note: Most of these storms originated in W Pacific and reached TYPHOON intensity at some stage along the track

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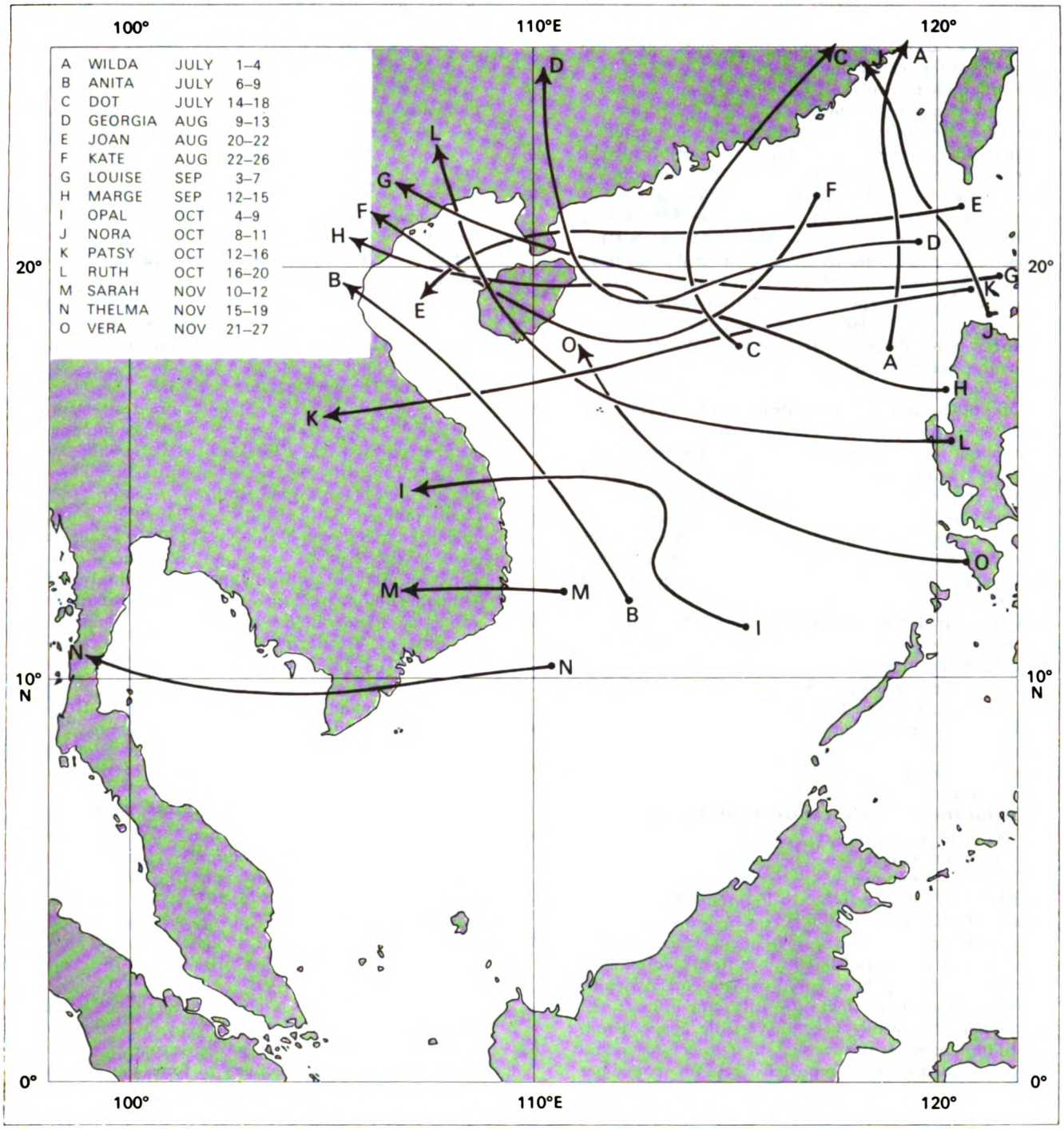

(1.122.4) Tropical storms recorded in the area during 1973

Note: Most of these storms originated in W Pacific and reached TYPHOON intensity at some stage along the track

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of an arch; heavy rain is usual when the arch is passing overhead.

Gulf of Thailand. The winds over the open sea are mainly between N and E from November to January. In February and March the dominant wind direction is from SE. The directions are variable in April, and then in May to September the SW Monsoon is dominant. Variable winds in October mark the transition from the summer to the winter monsoon.

In the first half of the winter monsoon, wind force decreases considerably towards the head of the Gulf, but the winds are fresher in the N than in the S in summer. Reports from the S part of the Gulf in December give 50 per cent force 1 to 3 then increase to 80 per cent towards the head of the Gulf. The proportion of light winds increases to about 90 per cent in the NW during February to April. Then, as the SW Monsoon takes over, the average wind freshens in the NW, and from May to September only 60 per cent of the winds are of force 1 to 3.About 80 per cent of SW winds average force 1 to 3 in the S. The Isthmus of Kra gives little shelter from SW winds in the N part of the Gulf. Winds of force 7 or more are infrequent. To the N of 10° N squalls are fairly common.

Off south-eastern Vietnam (S of 11° N). The NE Monsoon prevails from November to March, weakening and veering E in April. In December and January, the average wind force is 4 to 5 and winds of force 7 or more occur in 5 per cent of the observations. In November, February and March, the average wind is less and strong winds are rare. SW winds predominate from May to September. The average strength is force 3 to 4, but in August and September, it reaches force 7 in 1 to 2 per cent of the observations.

Off central Vietnam (11° N to 15° N). The NE Monsoon sets in during October and persists until March; the average strength is force 5 in December and reaches force 7 in 10 per cent of the observations. In May, winds from S or SW become the most frequent. The average wind strength is force 3 and seldom reaches force 7 in April and May. SW winds prevail from June to September, mainly force 4 but reach force 7 in 2 per cent of the observations.

Off northern Vietnam and in Gulf of Tonkin (N of 15° N). The NE Monsoon is weaker in this area and E winds are common early and late in the season (October to March). In October winds are mainly between NE and E, and from November to February they become mainly NE force 4. Force 7 is reported in about 5 per cent of observations with more frequent strong winds in the S than in the N. In March winds from all directions between N, through E, to S predominate, and SW winds only become predominant in July and August. In September the winds become variable again. From April to September the average strength is force 3, and force 7 winds are seldom reported except for about 2 per cent in June and July.

Eastern and northern Hainan Dao. The NE Monsoon is more prolonged and the SW Monsoon shorter and more variable than farther S. In September the predominant winds are NE to E, force 3 to 4. In October NE winds gain in frequency and strength though E winds are still frequent. The average strength is force 4. From November to April NE winds strongly predominate, with an average strength of force 4, although force 7 is reached in 3 per cent of the observations. May is the transitional month, although N and E winds predominate, but only about 1 per cent of observations reach force 7.

Winds and gales (within 20 miles of the coast)

1.124

At 20 miles distant from the coast, the winds are much as described above for the open sea but as the coast is approached, there is a gradual change to coastal winds. See article on 'Local Winds' in *The Mariner's Handbook*.

East coast of Peninsular Malaysia. Some of the coastal winds in this region are illustrated in the climatic tables at the end of this chapter. Gales are rare, but gusts known as *ribut* may reach gale force in squalls, on one or two days per month in the summer.

The NE Monsoon produces a considerable swell along this coastline so that, in many places, landing or the working of cargo are hindered, and at times made impossible, following periods when the monsoon has been blowing strongly.

Gulf of Thailand; Western Shore. The NE Monsoon prevails from December to April, and the SW Monsoon from May to October. NW squalls occur at times in the SW Monsoon. See summaries for stations from Songkhla to Bankgok in the climatic tables at the end of the chapter.

Gulf of Thailand; Eastern Shore. Land and sea breezes are well developed, the sea breezes reinforcing the SW Monsoon in summer, with average force of 4 to 5. The NE Monsoon is weaker here than on the W side of the gulf since the local sea breeze opposes it. The skies are often clear for days on end at this season.

At Ha Tien (5.61) (10° 23′ N, 104° 29′ E) winds are mainly from between N and NE at 1300 in January with a mean speed of 10 knots, but SW winds are also common. At night the winds are mainly light. In July W winds are dominant, both by day and by night, the speed averaging 8 knots by day and 6 knots by night.

Coast of Vietnam. From Mui Bai Bung (5.78) (8° 37′ N, 104° 43′ E) to about Dong Hoi (7.6), there is a tendency for the winds to be diverted along the coast during both monsoons. NE winds, averaging 16 knots, predominate by day, backing to N or NW about 12 knots at night. In July SW winds predominate throughout the 24 hours with average speed 15 knots by day and 10 knots at night.

At Qui-Nhon (6.126) N winds predominate in winter with average speed of 9 knots around noon and 7 knots at dawn. Winds are variable in summer, reaching about 10 knots around 1300 and very light or calm at dawn.

At Vinh (7.30) (18° 40′ N, 105° 40′ E) in winter the dominant direction is NNE, 14 knots by day and 9 knots at night with 68 per cent of light-winds. In summer WSW winds of 11 knots prevail by day and 70 per cent of light winds at night.

On the central and N coasts of Vietnam the winter monsoon is sometimes interrupted by the formation of a depression over China. These depressions, which occur most frequently from January to June, cause warm W winds known locally as *winds of Laos*.

Squalls may be violent near the head of the Gulf of Tonkin.

South Coast of China including Hainan Dao. The winter monsoon prevails from October to March, and the summer monsoon from May to August, the months of April and September being transitional.

In January at Zhanjiang (10.30) (21° 11′ N, 110° 24′ E), the winds are mainly between NE and SE with an average speed of 11 knots. Strong winds are rare. In July SW winds predominate with occasional force 6. Violent squalls occur near the mouth of Zhujiang Kou (12.1).

At Hong Kong the average seasonal winds are shown

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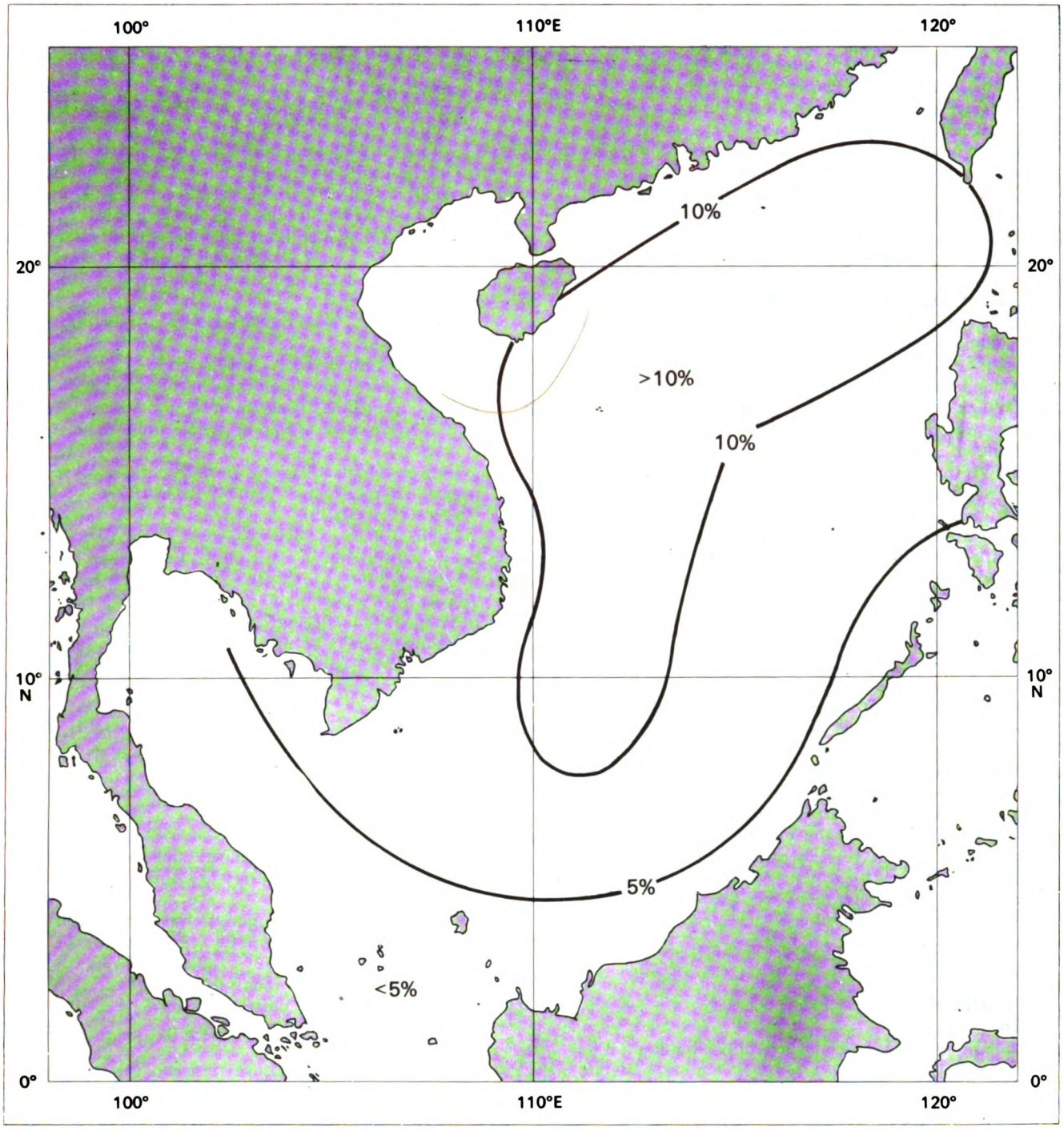

(1.123) Average frequency of winds of 28 knots (force 7) or more in WINTER

Note: Only 1 per cent or less occur in other seasons

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in the climatic tables. On the S side of Hong Kong Island S and SW winds predominate but even as far as Wenwei Zhou (13.5) (21° 49′ N, 113° 56′ E), E winds are common during the SW Monsoon.

Cloud

1.125

South of 5° N. Seasonal variation in the average cloud amounts over the sea in the extreme S is small. The average varies from 4 to 5 oktas in February to 6 oktas in November. Farther N the months of February to April are least cloudy at sea from 4 to 5 oktas, most of the months having an average of 5 to 6 oktas and November being the most cloudy with 6 oktas.

On a typical day in Singapore the sky is almost cloudless at dawn. The cumulus cloud forms and increases to a maximum during the afternoon. It disperses towards sundown and the sky is almost clear by midnight.

Gulf of Thailand. Off the SW shores, the cloudiest months are October to January. The least cloudy months are March to May. Towards the head of the Gulf the mean cloud cover is 3 to 4 oktas from November to April and 6 oktas from May to September.

On the coast of Cambodia and Vietnam the cloudiest months are from May to October, but only small amounts of cloud occur during the NE Monsoon.

Off Vietnam (Mui Bai Bung to 17° N), 5 to 6 oktas occur during May to November and 4 oktas from December to March. To the N of Mui Dinh (6.27), there is more cloud during the NE Monsoon.

Gulf of Tonkin. The cloudiest period is early spring, with 6 to 7 oktas. This does not correspond with the period of maximum rainfall but with the period of low stratus and intermittent drizzle known locally as *crachin*. These overcast drizzly conditions may persist for days on end at this season. The months of May and July to October are the least cloudy with 4 to 5 oktas. Very low cloud is frequent in March and the cloud base is below 300 m in 50 per cent of the dawn observations. The average cover in autumn is 4 to 5 oktas.

East of Hainan Dao. Off SE Hainan Dao, S of 20° N, it is most cloudy in February and March, about 6 oktas, and least, 3 to 4 oktas, in April and May. Between 20° N and the Chinese coast, the cloudy period is longer, February to April having about 6 oktas, and the least cloudy period is July to October, 4 to 5 oktas. The period February to April has frequent overcast conditions with very low cloud base (60 m) and some drizzle or rain at times.

Rainfall—thunderstorms

1.126

Rainfall over the area is generally abundant, the annual average ranging from 100 to 500 cm. It is 250 cm among the islands N and NE of Singapore but varies greatly in the Gulfs of Thailand and Tonkin and on the coasts of Vietnam depending on the exposure to the two monsoons.

Along the coast of Peninsular Malaysia the annual total exceeds 300 cm and increases to more than 500 cm on parts of the coast of Cambodia. In contrast, the innermost parts of the Gulf of Thailand are considerably drier, with average annual total of about 150 cm.

Along the S coast of Vietnam the mean annual rainfall falls below 200 cm and to less than 100 cm over a small area to SW of Mui Vung Tau (5.125) (10° 19′ N, 107° 05′ E). October to January rainfall details for the Mui Vung Tau area are given in the climatic tables.

On the Chinese coasts the mean annual rainfall is mostly between 150 and 220 cm.

On the coast of Thailand the rainy season is earlier than that along the S coast of Vietnam. The wettest period is from September to November followed by a drier spell from December to March. To the N of Prachuap Khiri Khan (4.83) (11° 48′ N, 99° 48′ E) the rainy season coincides with the SW Monsoon and the transitional period before the onset of the NE Monsoon.

Along the Cambodian coast, the wet season persists from May to October with the maximum of nearly 100 cm in August. The dry period occurs during December to February with less than 10 cm per month.

On the coast of Vietnam N of 12° N the seasonal distribution changes again because the hills inland provide shelter from the SW Monsoon, but this coast is exposed to the winter monsoon. Consequently between 12° N and 17° N, the wettest period is from August to December, and the months of February to July are comparatively dry.

In the Gulf of Tonkin, the wet season lasts from May to November.

Near the Chinese coasts, the period February to April has spells of very low cloud and drizzle or rain, with poor visibility (crachin). These months, in spite of the low rainfall, have spells of rain or drizzle and frequent poor conditions.

Between Hainan Dao and Hong Kong the wet season prevails from May to September and the dry from November to March.

In the S part of Malaysia, most of the rain falls as heavy showers but in other parts of the region covered by this volume, which are exposed to the prevailing monsoon, the rainfall is more widespread and prolonged. This effect is most marked in hilly areas. The most intense falls occur with typhoons. For example, 53 cm fell in 24 hours in a typhoon at Hong Kong, and 49 cm was recorded in 24 hours at Phu Lien (7.60), near Haiphong.

Thunderstorms are rather common over most of the area from March to November, but infrequent in the remaining months.

Fog and visibility

1.127

At sea. Diagram 1.127 indicates the fog frequency in winter. In the months of May to December it is much less frequent.

Fog is very rare throughout the year to the E of Peninsular Malaysia. Except for a few reports in March, fog is also rare in the Gulf of Thailand. Off Vietnam, fog is rare except in the months of February to April inclusive, when it is reported in about 5 per cent of the observations in the N, decreasing in frequency elsewhere.

In the Gulf of Tonkin, ships' reports show fog in 2 to 5 per cent of the observations in March and April and 5 to 10 per cent in February. Fog is rare from August to December.

Fog is rare from October to December to E of Hainan Dao; the frequency increases to between 5 and 10 per cent during February to April.

Much of the fog N of 20° N occurs during very low cloud and drizzle (crachin). Heavy rain may also reduce visibility below fog limits temporarily, and almost to nil in torrential storms.

Reports of 'poor visibility', that is visibility of less than 5 miles, have a similar distribution. Thus, poor visibility is most frequent N of 20° N and occurs in 20 per cent of observations in some months between

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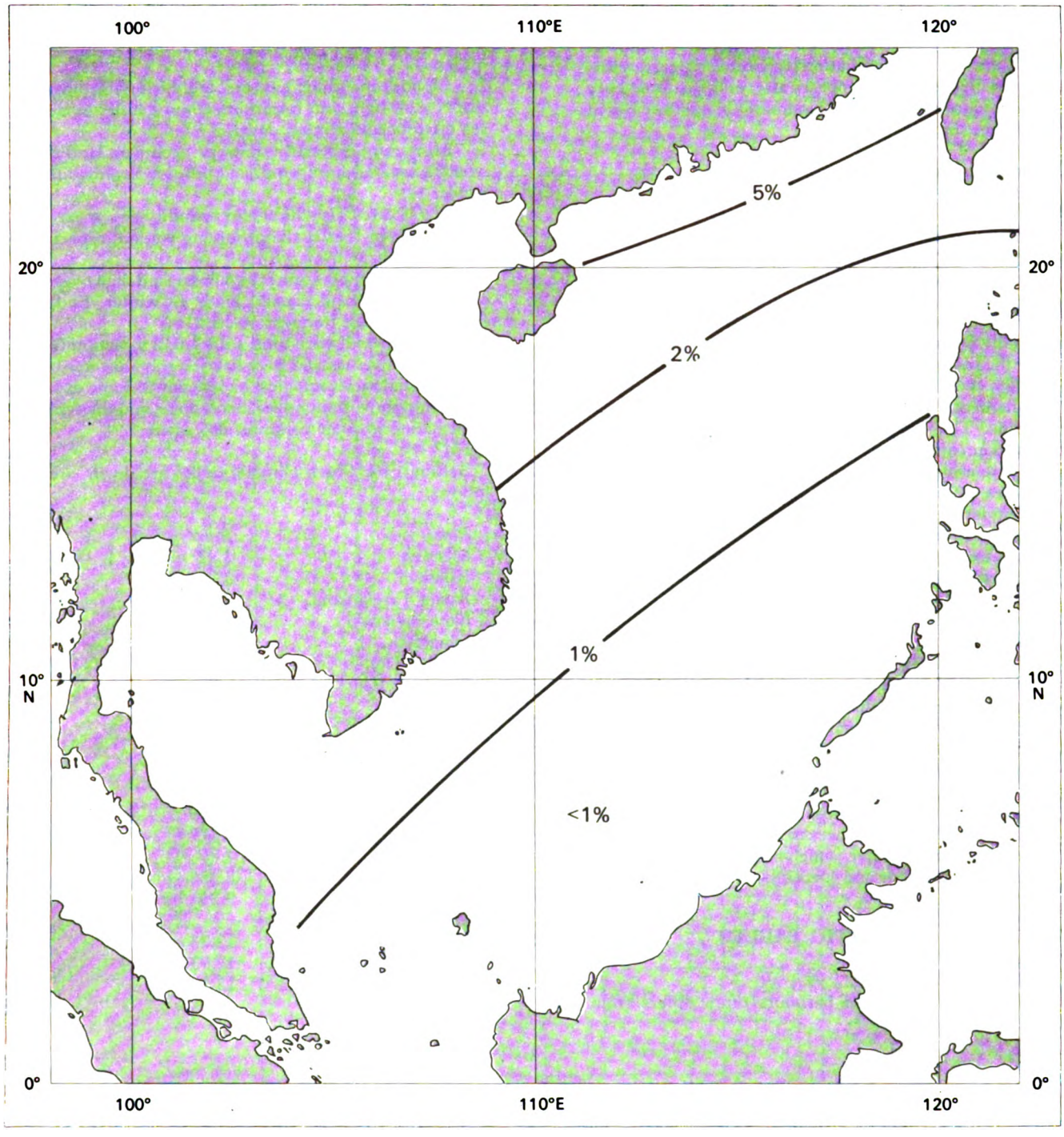

(1.127) Fog frequency in MARCH (max occurrence)

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anuary and April. In most of the remaining months, the requency is 5 to 10 per cent. The frequency of poor visibility decreases to less than 5 per cent off the coast of Peninsular Malaysia but may increase to a frequency of 5 to 10 per cent locally during August to December.

On the coast. The number of days with fog at certain coastal stations are given in the climatic tables; intensive fog is rare in these waters. A few ports and harbours in the N are affected by radiation fog around dawn, but this inconvenience soon disappears after sunrise. Dust haze may obscure some familiar landmarks along the coast in summer.

Temperature

1.128

The mean monthly temperature over the sea in all months is within 1°C of the corresponding sea surface temperature. Consequently an evaluation of the mean *air* temperature over the region may be obtained from diagrams 1.101.1 to 1.101.4 on pages 18 to 21, which give the average seasonal *sea* surface temperature.

In the S part of Peninsular Malaysia, the temperature over the sea varies little through the year; 27°C in winter and 28° to 29°C in summer. Conditions in the Gulf of Thailand are similar, with April and May the warmest months. The temperature here drops when the SW Monsoon commences.

There is a greater seasonal variation in the N part of the area covered by this volume.

Temperatures on land are highest in the afternoon and lowest around dawn. There are local variations caused by the onset of the sea breeze towards noon and the development of land breezes during the night.

Humidity

1.129

Humidity is high for most of the year. On the coast of Peninsular Malaysia it is very high with little seasonal variation. Here, as with temperature, the diurnal cycle is more marked than seasonal change. Monthly averages at 0700 and 1300 are included in the climatic tables, though a number of reporting stations, unfortunately, give the daily mean, combining all observations.

In the Gulf of Tonkin humidity is highest during the drizzly period from February to April, but it is also high from May to September, which is the rainy season; it is lowest in November and December.

CLIMATIC TABLES

1.130

Weather at ports and harbours often differs from conditions offshore. Some of the common variations encountered along the coast are described in *The Mariner's Handbook*.

In general the main changes which occur on the coast are:

1. The average wind speed over the sea is greater than on land; gales are more common over the open sea. There is a greater variation of wind direction and speed on land.
2. Clouds tend to increase on land during the day and disperse at night, but maximum cloud density over the sea often occurs around dawn.
3. More rain, especially showers, occurs on land than over the sea. Onshore winds and hills are a contributary factor.
4. Fog is often very local and visibility at sea may be different from that at the observing station, especially around dawn.
5. Average temperature is higher on land than over the sea in summer and usually lower in winter. Sudden changes are most frequent on land.
6. Mariners will encounter substantial variation from the seasonal values and may have to rely on their own accumulated meteorological knowledge to some extent. Data from some stations are incomplete, and the type of information in some columns also varies.

1.131

Stations, for which climatic tables are given, are as follows:

Place	*Para in text*
Mersing	3.22
Kuantan	3.79
Kuala Terengganu	3.107
Kota Baharu	3.131
Songkhla	4.22
Ao Ban Don	4.50
Prachuap Khiri Khan	4.83
Bangkok	4.118
Khlong Yai	4.208
Kampot	5.52
Mui Vung Tau	5.125
Ho Chi Minh City	5.149
Da Nang	6.169
Quang Tri	6.177
Haiphong	7.89
Beihai	8.136
Haikou	9.25
Yung-ning (Nanning Fu)	
Macau	12.23
Guangzhou	12.93
Hong Kong	13.109

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3.22—MERSING. 2° 27′ N, 103° 50′ E. Height above Mean Sea Level—45 m

WMO No. 48674

Climatic Table compiled from 12 to 25 Years' Observations, 1941 to 1970

Month	Average pressure at M.S.L.	Temperature				Humidity		Cloud		Rain		Wind direction																		Mean wind speed		No. of days with wind 28 kts. or more	No. of days with fog at dawn	No. of days with thunder
								⊕	No. of			⊕ Percentage of observations from										— Percentage of observations from											
		Average daily max.	Aboolute monthly max.	Average daily min.	Absolute monthly min.	Average	Minimum	Average Oktas	Clear days	Average fall	No. of days with 1 mm or more	N	NE	E	SE	S	SW	W	NW	Calm	N	NE	E	SE	S	SW	W	NW	Calm	⊕	—			
	mb	°C	°C	°C	°C	%	%			mm.																				Knots				
January	1011	28	32	22	18	86	52	6	1	389	15	42	19	6	1	2	8	9	11	2										10	—	1	0	2
February	1011	29	31	23	18	84	53	5	1	229	11	44	21	1	1	1	9	8	14	1										8		1	0	3
March	1010	30	33	23	19	85	47	5	2	203	9	33	26	2	1	1	19	9	6	3										7		2	1	8
April	1009	30	34	23	21	86	42	5	2	137	8	18	20	12	2	5	35	4	2	2										6		3	0	14
May	1009	32	35	23	20	87	37	4	2	155	9	2	6	15	5	10	51	8	1	2										5		2	0	16
June	1010	31	34	23	21	87	42	4	2	147	9	1	3	10	6	17	46	14	1	2										6		1	0	16
July	1009	31	34	22	19	87	43	4	2	163	10	1	1	3	7	25	44	14	1	4										6		1	0	14
August	1009	31	34	22	20	87	40	4	2	168	10	1	2	8	11	13	28	33	1	3										6		2	0	16
September	1010	31	34	22	19	87	40	4	1	158	10	2	1	5	5	13	41	28	1	4										5		1	0	17
October	1010	30	34	22	20	88	35	5	1	221	12	3	7	12	6	4	14	48	2	4										5		2	⊕	14
November	1010	29	34	22	21	88	44	6	1	343	15	17	13	3	1	1	8	35	16	6										7		1	0	11
December	1010	28	34	23	20	87	55	6	1	508	19	34	20	1	1	1	3	19	19	2										8		1	⊕	3
Means	1010	30	—	23	—••	87	—	5	—	—	—	16	12	7	4	8	25	19	6	3	—	—	—	—	—	—	—	—	—	7	—	—	—	—
Totals	—	—	—	—	—	—	—	—	18	2821	137	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			18	1	134
Extreme values	—	—	35†	—	18††	—	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
No. of years' observations		25										12																		12	12	20	20	20

•Mean of highest each year.
••Mean of lowest each year.

†Highest recorded temperature.
††Lowest recorded temperature.

⊕Rare.
◇All observations.

Source: M.O. Bracknell; H.D. Taunton.

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3.79—KUANTAN. 3° 46′ N, 103° 12′ E. Height above Mean Sea Level—18 m

WMO No. 48657

Climatic Table compiled from 11 to 24 Years' Observations, 1941 to 1970

Month	Average Pressure at M.S.L.	Temperature: Average daily max.	Temperature: Absolute monthly max.	Temperature: Average daily min.	Temperature: Absolute monthly min.	Φ Humidity: Average	Φ Humidity: Minimum	Cloud: Φ Average Oktas	Cloud: No. of Clear days	Rain: Average fall	Rain: No. of days with 1 mm or more	Wind direction Φ: Percentage of observations from N	NE	E	SE	S	SW	W	NW	††	Wind direction: Percentage of observations from N	NE	E	SE	S	SW	W	NW	Calm	Mean wind speed Φ	Mean wind speed —	No. of days with wind 28 kts. or more	No. of days with fog at dawn	No. of days with thunder
	mb	°C	°C	°C	°C	%	%			mm.																				Knots				
January	1011	29	33	22	17	89	47	6	⊕	396	14	45	19	3	1	1	2	3	11	15									6		⊕	1	1
February	1010	30	33	21	18	87	46	6	1	231	10	46	25	5	1	1	1	1	8	12									4		⊕	0	1
March	1010	31	34	22	18	86	43	5	1	218	11	27	17	17	1	1	1	1	4	31									4		0	2	7
April	1009	32	35	22	19	86	43	5	1	178	11	8	5	17	4	9	11	4	2	40									3		0	5	15
May	1008	32	35	23	21	87	41	5	1	173	10	3	1	8	5	9	22	7	2	43									3		0	7	20
June	1008	32	37	23	19	86	38	4	1	140	8	2	2	6	3	14	33	5	2	33									3		0	4	16
July	1009	32	36	22	19	85	38	4	1	142	9	3	1	5	5	19	31	3	1	32									3		0	1	17
August	1009	32	34	22	19	86	36	4	1	147	9	2	2	6	4	25	24	4	2	31									3		0	3	19
September	1009	32	34	22	20	86	41	5	1	206	12	3	2	7	4	20	21	3	2	38									3		⊕	4	18
October	1010	31	34	22	20	88	46	5	1	267	13	7	4	10	2	11	16	5	4	41									2		0	3	18
November	1010	30	34	22	19	89	47	6	⊕	356	16	30	12	10	2	4	4	3	8	27									3		0	4	13
December	1010	29	33	22	18	90	49	6	⊕	521	18	50	23	2	1	1	1	1	7	14									5		⊕	1	4
Means	1009	31	—	22	—	87	—	5	—	—	—	19	9	8	3	10	14	3	4	30									4	—	—	—	—
Totals	—	—	—	—	—	—	—	—	10	2975	141	—	—	—	—	—	—	—	—	—									—	—	1	35	149
Extreme values	—	—	37†	—	17††	—	36	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
No. of years' observations	24											11																	16	—	20	20	20

*Mean of highest each year.
**Mean of lowest each year.
†Highest recorded temperature.
††Lowest recorded temperature.
⊕Rare.
ΦAll observations.
††Light variable.

Source: M.O. Bracknell; H.D. Taunton.

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3.107—KUALA TERENGGANU. 5° 20′ N, 103° 08′ E. Height above Mean Sea Level—10 m

WMO No. 48619 Climatic Table compiled from 20 to 28 Years' Observations, 1941 to 1970

Month	Average pressure at M.S.L.	Temperature				Average humidity		Average cloud amount		Rain		Wind direction (Φ) Percentage of observations from									Wind direction (—) Percentage of observations from									Mean wind speed		No. of days with strong wind ‡	No. of days with fog at dawn	No. of days with thunder
		Average daily max.	Average monthly max.	Average daily min.	Average monthly min.	0700	1300	0700	1300	Average fall	No. of days with 1 mm or more	N	NE	E	SE	S	SW	W	NW	Calm	N	NE	E	SE	S	SW	W	NW	Calm	0700	1300			
	mb	°C	°C	°C	°C	%	%	Oktas		mm.																				Knots				
January	1011	28	29	22	20	92	75	6	7	262	17	7	40	22	1	2	14	6	2	6										4	6	1	3	0
February	1011	29	31	22	20	93	73	6	5	142	12	5	34	23	2	5	21	4	1	5										3	5	⊕	3	1
March	1010	30	32	23	21	94	71	6	5	173	13	3	25	24	2	8	25	5	1	7										3	4	⊕	2	3
April	1009	32	33	23	22	94	69	6	5	147	12	3	14	19	3	12	31	7	1	10										2	4	0	1	1
May	1009	32	34	23	22	94	69	6	5	132	12	3	8	15	5	15	35	7	3	9										2	4	0	1	15
June	1008	32	33	23	22	93	68	6	5	119	11	2	6	16	7	19	33	8	2	7										3	5	⊕	1	14
July	1008	31	33	23	21	94	68	6	6	120	11	1	4	16	10	20	34	7	2	6										3	5	0	1	14
August	1009	31	33	23	21	94	68	6	6	157	12	1	5	16	9	18	37	7	2	5										2	5	⊕	1	15
September	1009	31	33	23	21	93	69	6	6	180	15	3	8	14	5	16	40	7	2	5										3	5	1	⊕	15
October	1009	30	32	23	22	94	73	7	6	350	18	8	9	10	2	10	40	10	5	6										2	4	0	1	12
November	1010	29	31	23	21	94	17	7	6	622	21	10	14	10	2	6	21	12	8	7										3	5	⊕	1	7
December	1011	28	30	23	20	92	78	7	7	592	22	12	31	14	1	2	21	9	6	4										4	6	1	1	1
Means	1010	30	34*	23	19**	93	71	6	6	—	—	5	17	17	4	11	30	7	3	6	—	—	—	—	—	—	—	—	—	3	5	—	—	—
Totals	—	—	—	—	—	—	—	—	—	2996	176	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4	16	98
Extreme values	—	—	35†	—	17††	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
No. of years' observations		28										26																		25	20	25	28	20

*Mean of highest each year.
**Mean of lowest each year.
†Highest recorded temperature.
††Lowest recorded temperature.
⊕Rare.
Φ All observations.
‡28 kts. or more.

Source: M.O. Bracknell; H.D. Taunton.

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3.129—KOTA BAHARU. 6° 10′ N, 102° 17′ E. Height above Mean Sea Level—4 m

WMO No. 48615

Climatic Table compiled from 9 to 25 Years' Observations, 1941 to 1970

Month	Average pressure at M.S.L.	Temperature				Average humidity		Average cloud amount		Rain		Wind direction																Mean wind speed		No. of days with wind force 6 or more	No. of days with fog at dawn	No. of days with thunder
												Φ									–											
												Percentage of observations from									Percentage of observations from											
		Average daily max.	Absolute monthly max.	Average daily min.	Absolute monthly min.	0700	1300	0700	1300	Average fall	No. of days with 1 mm or more	N	NE	E	SE	S	SW	W	NW	Calm	N	NE	E	SE	S	SW	W	NW	Calm	Φ	–			
	mb	°C	°C	°C	°C	%	%	Oktas		mm.																				Knots				
January	1012	29	31	22	17	91	68	7	6	249	17	4	27	29	6	7	6	1	1	19										6		1	1	0
February	1011	30	33	22	18	93	64	6	6	140	9	1	21	49	3	8	3	1	1	13										5		⊕	3	1
March	1010	31	34	23	18	91	60	6	6	173	10	2	19	43	6	6	2	1	1	20										5		⊕	3	3
April	1010	32	36	23	18	92	62	7	6	117	9	1	14	34	8	17	2	1	1	22										4		⊕	1	7
May	1009	32	36	24	22	91	63	7	7	160	13	8	14	17	7	16	18	2	1	17										4		⊕	⊕	13
June	1009	32	34	23	21	91	66	7	7	152	12	8	10	8	9	19	20	4	2	20										4		2	0	11
July	1009	32	34	23	21	92	63	7	6	142	14	8	11	5	4	27	17	5	2	21										4		1	⊕	14
August	1009	32	34	23	21	92	65	6	7	165	14	4	11	4	7	26	17	6	5	20										5		⊕	1	13
September	1009	31	34	23	21	93	64	7	7	211	17	10	10	7	5	21	22	5	3	17										4		1	⊕	15
October	1010	31	33	23	21	93	69	7	6	282	20	8	13	10	5	19	21	5	3	16										5		⊕	0	11
November	1011	29	33	23	19	94	75	7	7	615	21	9	21	15	5	14	17	4	3	12										4		1	⊕	5
December	1011	28	32	23	19	91	75	7	7	663	22	3	25	28	4	11	9	2	1	17										5		⊕	0	1
Means	1010	31	35•	23	19••	92	66	7	6	—	—	5	16	21	6	16	13	3	2	18										5	—	—	—	—
Totals	—	—	—	—	—	—	—	—	—	3069	178	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Extreme values	—	—	36†	—	17††	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8	10	94
No. of years' observations		25										9																		19	—	20	20	25

•Mean of highest each year.
••Mean of lowest each year.

†Highest recorded temperature.
††Lowest recorded temperature.

⊕Rare.
ΦAll observations.

Source: M.O. Bracknell; H.D. Taunton.

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4.22—SONGKHLA. 7° 11′ N, 100° 37′ E. Height above Mean Sea Level—4 m

WMO No. 48568

Climatic Table compiled from 11 to 26 Years' Observations, 1941 to 1970

Month	Average pressure at M.S.L.	Temperature: Average daily max.	Temperature: Absolute max.	Temperature: Average daily min.	Temperature: Absolute min.	Average humidity: 0700	Average humidity: 1300	Average cloud amount: 0700	Average cloud amount: 1300	Rain: Average fall	Rain: No. of days with 1 mm or more	Wind direction ϕ: Percentage of observations from N	NE	E	SE	S	SW	W	NW	‡	Wind direction: Percentage of observations from N	NE	E	SE	S	SW	W	NW	Calm	Mean wind speed ϕ	Mean wind speed —	No. of days with wind 28 kts. or more	No. of days with fog at dawn	No. of days with thunder
	mb	°C	°C	°C	°C	%	%	Oktas		mm.																				Knots				
January	1012	30	32	24	22	86	68	6	5	157	14	3	17	66	7	1	1	0	0	5									8		2	●	●
February	1011	31	32	24	20	88	65	5	4	59	7	3	14	59	8	2	2	0	0	12									7		2	0	1
March	1010	32	33	24	21	91	64	5	5	58	7	3	18	49	8	2	2	0	0	18									6		1	●	2
April	1010	33	34	25	23	92	65	6	6	91	10	2	19	37	6	3	3	1	1	28									6		1	●	8
May	1009	33	35	24	23	93	63	6	7	119	14	4	10	13	2	7	18	10	1	35									5		●	●●	14
June	1008	33	34	24	22	93	64	7	6	101	12	2	6	2	1	7	24	20	1	37									4		⊕	⊕	10
July	1009	32	34	23	22	91	64	7	6	94	12	3	4	4	2	8	23	22	1	33									4		0	⊕	13
August	1008	32	34	24	22	93	66	7	6	95	13	4	6	5	2	8	23	16	2	34									3		●	●	11
September	1008	32	34	23	22	92	68	7	7	105	9	3	6	3	2	9	26	21	2	28									3		⊕	0	9
October	1009	31	33	24	22	92	67	7	7	316	20	7	7	4	2	5	23	24	6	22									4		●	,1	10
November	1010	30	32	24	23	92	74	7	7	576	23	13	15	21	10	4	8	6	6	17									5		●	1	6
December	1011	30	32	24	22	91	73	7	7	439	22	8	25	41	6	3	3	1	1	12									6		2	1	2
Means	1010	32	34*	24	21**	91	67	7	6	—	—	5	12	25	5	5	13	10	2	23									5	—	—	—	—
Totals	—	—	—	—	—	—	—	—	—	2210	163	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10	5	88
Extreme values	—	—	35†	—	20††	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
No. of years' observations	26											11																	18	—	20	20	22

*Mean of highest each year.
**Mean of lowest each year.

†Highest recorded temperature.
††Lowest recorded temperature.

●Rare.
ϕAll observations.

‡ < 3 kts.

Source: M.O. Bracknell; H.D. Taunton.

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4.50—AO BAN DON. 9° 08′ N, 99° 18′ E. Height above Mean Sea Level—10 m

WMO No. 48551

Climatic Table compiled from 20 Years' Observations, 1951 to 1970

Month	Average pressure at M.S.L.	Average and extreme temperatures				Average humidity		Average cloud amount		Rain		Wind direction — Percentage of observations from									Wind direction — Percentage of observations from							Direction of max. wind	Max. wind speed	Mean wind speed		No. of days with	No. of days with mist or haze	No. of days with thunder
		Daily max.	Absolute max.	Daily min.	Absolute min.	0900	Monthly min.	0900		Average fall	No. of days with 1 mm or more	N	NE	E	SE	S	SW	W	NW	Calm	N	NE	E	SE	S	SW	W			Dom. direction	0900			
	mb	°C	°C	°C	°C	%	%	Oktas		mm.																				Kts			
January	1012	31	35	21	12	83	39	5		72	8																E	35	NE	3		10	2
February	1011	33	37	20	14	79	24	4		14	3																NE	25	E	3		12	2
March	1010	34	39	21	16	77	23	4		20	3																NE	38	NE	3		12	9
April	1009	35	39	22	18	78	28	5		51	7																E	34	N	3		10	16
May	1008	34	38	23	19	82	36	6		174	17																NW	37	SW	3		4	17
June	1009	33	37	23	19	82	37	6		133	16																NW	35	SW	4		1	10
July	1009	32	37	23	20	83	37	6		147	17																W	40	SW	4		2	10
August	1009	32	36	23	20	83	37	6		146	18																NW	38	SW	4		1	9
September	1010	32	36	23	20	85	41	6		183	20																NW	35	SW	3		3	10
October	1010	31	35	23	21	88	49	6		295	20																NE	40	SW	2		8	13
November	1011	30	35	22	16	88	45	6		341	19																SE	36	NE	2		9	8
December	1012	30	34	21	17	86	48	5		184	14																SE	28	NE	3		8	2
Means	1010	32	37*	22	14**	83	—	6		—	—																				3	—	—	—
Totals	—	—	—	—	—	—	—	—	—	1760	162	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	80	108
Extreme values	—	—	39†	—	12††	—	23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
No. of years' observations																																

*Mean of highest each year.
**Mean of lowest each year.

†Highest recorded temperature.
††Lowest recorded temperature.

ΦAll observations.

Source: M.O. Bracknell; H.D. Taunton.

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4.83—PRACHUAP KHIRI KHAN. 11° 48′ N, 99° 48′ E. Height above Mean Sea Level—5 m

WMO No. 48500

Climatic Table compiled from 13 to 24 Years' Observations, 1941 to 1970

Month	Average pressure at M.S.L.	Temperature				Average humidity		Average cloud amount		Rain		Wind direction																		Mean wind speed		No. of days with wind 28 kts. or more	No. of days with fog at dawn	No. of days with thunder
												0700									1300												
												Percentage of observations from									Percentage of observations from												
		Average daily max.	Average monthly max.	Average daily min.	Average monthly min.	0700	1300	0700	1300	Average fall	No. of days with 1 mm or more	N	NE	E	SE	S	SW	W	NW	Calm	N	NE	E	SE	S	SW	W	NW	Calm	0700	1300			
	mb	°C	°C	°C	°C	%	%	Oktas		mm																				Knots				
January	1013	31	33	19	13	92	62	4	4	33	2	15	4	2	2	2	2	7	19	47	29	38	12	6	5	0	0	1	9	3	8	1	2	1
February	1012	32	34	20	16	92	62	4	4	42	3	6	2	3	2	3	6	11	12	55	12	19	15	21	25	4	1	0	3	2	7	0	1	2
March	1011	33	35	22	19	91	62	4	4	48	4	2	2	2	2	5	12	12	7	56	4	7	10	28	41	5	2	1	2	2	7	0	●	6
April	1009	34	36	24	21	90	65	5	5	87	6	4	2	3	3	8	15	19	6	40	4	9	15	31	36	2	1	0	2	2	7	●	0	12
May	1008	34	37	24	22	89	67	6	6	114	10	0	0	0	0	4	13	30	5	48	5	6	5	16	30	11	17	4	6	3	8	0	0	15
June	1008	32	35	24	23	88	70	6	6	92	14	0	0	0	0	8	27	27	3	35	1	1	1	7	17	32	37	1	3	3	7	0	0	8
July	1008	32	35	24	22	87	69	6	6	97	15	0	0	0	0	5	31	35	3	26	1	1	2	6	9	30	47	1	3	3	7	1	0	7
August	1008	32	35	24	22	88	69	6	6	90	15	0	0	1	2	4	28	40	3	22	1	0	0	5	8	32	50	3	1	4	7	1	0	6
September	1009	32	35	24	22	89	70	7	7	111	14	2	1	2	2	4	24	31	5	29	1	5	8	7	15	18	38	1	7	4	7	1	0	6
October	1010	31	34	23	21	92	73	6	6	253	14	12	2	2	1	2	10	21	13	37	21	18	10	10	7	5	13	4	12	4	7	●	0	10
November	1011	31	33	22	19	90	70	6	5	172	9	29	5	4	1	1	3	7	21	29	47	27	11	3	1	1	1	1	8	5	8	1	●	8
December	1013	30	32	19	15	86	65	4	4	31	2	37	5	2	1	1	4	6	23	21	51	40	5	1	0	0	0	1	2	4	10	1	●	3
Means	1010	32	38*	22	13**	90	67	5	5	—	—	9	2	2	1	4	15	20	10	37	15	14	8	12	16	12	17	1	5	3	7	—	—	—
Totals	—	—	—	—	—	—	—	—	—	1164	108	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8	4	84
Extreme values	—	—	40†	—	9††	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
No. of years' observations		24										13									15									20	20	22	22	22

*Mean of highest each year.
**Mean of lowest each year.

†Highest recorded temperature.
††Lowest recorded temperature.

●Rare.

Source: M.O. Bracknell; H.D. Taunton.

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4.118—BANGKOK. 13° 44′ N, 100° 30′ E. Height above Mean Sea Level—12 m

WMO No. 48455

Climatic Table compiled from 13 to 28 Years' Observations, 1941 to 1970

Month	Average pressure at M.S.L.	Temperature: Average daily max.	Temperature: Average monthly max.	Temperature: Average daily min.	Temperature: Average monthly min.	Average humidity: 0700	Average humidity: 1300	Average cloud amount: 0700	Average cloud amount: 1300	Rain: Average fall	Rain: No. of days with 1 mm or more	Wind direction 0700: Percentage of observations from N	NE	E	SE	S	SW	W	NW	Calm	Wind direction 1300: Percentage of observations from N	NE	E	SE	S	SW	W	NW	Calm	Mean wind speed: 0700	Mean wind speed: 1300	No. of days with wind 28 kts. or more	No. of days with fog at dawn	No. of days with thunder
	mb	°C	°C	°C	°C	%	%	Oktas		mm.																					Knots				
January	1013	32	35	21	14	91	53	4	3	13	1	9	9	8	3	2	3	3	5	58	21	22	16	6	4	4	3	3	21	2	4	●	4	0
February	1012	33	36	23	18	91	56	4	4	23	2	5	7	9	6	5	3	5	3	58	4	11	10	10	26	19	4	3	13	2	5	0	2	2
March	1010	34	37	25	21	91	57	4	5	38	3	3	6	11	9	8	5	3	2	53	3	3	6	13	41	23	4	1	6	2	5	0	●	5
April	1009	35	38	25	23	89	59	5	5	91	5	5	7	8	7	9	7	4	3	50	3	3	3	15	31	21	8	2	14	2	5	●	●	11
May	1008	34	37	25	23	90	62	6	6	157	6	3	4	7	6	4	5	6	3	62	3	1	1	8	23	28	12	4	20	1	4	0	●●	17
June	1007	33	36	25	23	90	67	6	6	152	10	3	3	3	7	8	10	10	3	53	1	0	2	6	26	33	18	6	8	2	5	●	●	11
July	1007	32	35	24	23	90	66	6	6	168	11	2	3	3	3	8	14	12	3	52	1	1	1	4	16	44	23	5	5	2	5	●	1	11
August	1007	32	35	24	23	91	67	6	7	173	11	2	2	4	2	8	13	8	3	58	2	0	1	4	17	37	26	2	11	1	4	●	●	11
September	1008	32	34	24	22	92	70	7	7	298	14	4	4	4	3	5	8	9	4	59	8	4	3	3	12	22	27	8	13	2	5	0	●	13
October	1010	31	34	24	22	92	71	7	6	234	12	12	6	6	3	3	3	4	7	56	32	19	6	2	4	8	7	11	11	1	4	0	1	11
November	1011	21	33	23	19	90	65	5	5	58	5	20	11	6	3	3	2	2	7	46	43	23	9	2	1	1	2	9	11	2	5	0	1	4
December	1013	31	33	21	15	89	56	4	4	12	1	19	10	6	2	2	2	3	8	48	44	28	10	2	1	0	1	8	6	2	5	0	1	0
Means	1010	33	38•	24	14••	91	62	5	5	—	—	7	6	6	5	5	6	6	4	55	14	10	5	6	17	20	11	5	12	2	5	—	—	—
Totals	—	—	—	—	—	—	—	—	—	1417	81	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	11	96
Extreme values	—	—	44†	—	10††	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
No. of years' observations	23–28											13									15									18	18	15	15	20

•Mean of highest each year.
••Mean of lowest each year.

†Highest recorded temperature.
††Lowest recorded temperature.

●Rare.

Source: M.O. Bracknell; H.D. Taunton.

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4.208—KHLONG YAI. 11° 47′ N, 102° 53′ E. Height above Mean Sea Level—4 m

WMO No. 48501 Climatic Table compiled from 18 to 20 Years' Observations, 1951 to 1970

Month	Average pressure at M.S.L.	Average and extreme temperatures				Average humidity		Average cloud amount		Rain		Wind direction										Wind direction							Direction of max. wind	Max. wind speed	Mean wind speed		No. of days with poor visibility	No. of days with thunder
		Daily max.	Absolute max.	Daily min.	Absolute min.	ϕ	Ext. min.	ϕ	—	Average fall	No. of days with 1 mm or more	Percentage of observations from										Percentage of observations from											
												N	NE	E	SE	S	SW	W	NW	Calm	N	NE	E	SE	S	SW	W			Dom. direction	ϕ		
	mb	°C	°C	°C	°C	%	%	Oktas		mm.																			Kts	Knots			
January	1012	31	36	20	13	70	30	5		36	4																	ENE	40	NE	5	5	3
February	1012	31	35	22	15	75	23	5		73	6																	NE	47	W	5	4	5
March	1011	32	36	23	16	77	25	6		132	10																	NE	40	W	5	5	12
April	1010	33	35	24	20	78	50	6		128	13																	W	30	NE	5	3	19
May	1008	32	34	24	21	82	54	7		444	21																	E W	40	W	4	1	19
June	1008	31	34	24	21	85	58	7		791	24																	SE W	40	W	5	1	14
July	1008	30	34	24	20	86	61	7		818	27																	NE W	40	W	4	3	12
August	1008	30	32	24	21	87	56	7		1114	28																	W WNW	40	W	4	2	8
September	1009	30	32	23	20	87	58	7		832	26																	W	28	W	4	3	10
October	1010	31	35	23	19	84	45	7		356	20																	W NW	40	W	4	5	12
November	1011	31	36	22	15	76	34	6		103	9																	ENE	40	NE	5	3	7
December	1112	31	35	21	14	70	33	5		18	3																	NE E	40	NE	6	2	1
Means	1010	31	34**	23	15**	80	—	6	—	—	—																	—	—	—	5	—	—
Totals	—	—	—	—	—	—	—	—	—	4845	191	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	37	122
Extreme values	—	—	36†	—	13††	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
No. of years' observations	18	19				20																20											

*Mean of highest each year.
**Mean of lowest each year.

†Highest recorded temperature.
††Lowest recorded temperature.

ϕAll observations.

Source: M.O. Bracknell; H.D. Taunton.

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5.52—KAMPOT. 10° 37′ N, 104° 13′ E. Height above Mean Sea Level—5 m

WMO No. 48985

Climatic Table compiled from 15 to 25 Years' Observations, 1941 to 1970

Month	Average pressure at M.S.L.	Temperature				Average humidity		Cloud: No. of clear days		Rain		Wind direction: Percentage of observations from —									Wind direction: Percentage of observations from —									Mean wind speed		No. of days with wind 28 kts. or more	No. of days with fog at dawn	No. of days with thunder
		Average daily max.	Absolute max.	Average daily min.	Absolute min.	0	—	0700	1300	Average fall	No. of days with 1 mm or more	N	NE	E	SE	S	SW	W	NW	Calm	N	NE	E	SE	S	SW	W	NW	Calm					
	mb	°C	°C	°C	°C	%	%	Oktas		mm																			Knots				
January	1013	31	35	22	15	71		8	8	15	1																				⊕	0	0
February	1012	32	37	23	18	74		4	8	25	2																				0	0	2
March	1011	32	37	24	19	74		5	10	81	5																				0	0	2
April	1010	33	36	25	20	76		5	7	109	6																				⊕	0	8
May	1009	32	39	25	21	79		3	2	193	6																				0	0	10
June	1008	31	35	24	20	81		2	1	213	13																				0	0	2
July	1008	31	34	24	19	83		3	3	326	16																				⊕	0	13
August	1008	31	38	24	22	84		2	1	338	17																				0	0	6
September	1009	31	33	24	21	85		2	1	251	13																				0	0	2
October	1010	31	34	24	20	84		3	1	234	12																				⊕	0	6
November	1011	31	35	23	17	79		5	4	145	9																				0	0	5
December	1012	31	34	22	18	72		10	7	46	3																				⊕	0	0
Means	1010	31	—	24	—	79	—	—	—	—	—																				—	—	—
Totals	—	—	—	—	—	—	—	52	53	1976	103	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		—	1	56
Extreme values	—	—	39†	—	15††	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	⊕		
No. of years' observations	25																												15				

†Highest recorded temperature.
††Lowest recorded temperature.

⊕Rare.
◊All observations.

Source: M.O. Bracknell; H.D. Taunton.

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5.125—MUI VUNG TAU. 10° 19′ N, 107° 05′ E. Height above Mean Sea Level—180 m

WMO No. 48903/4

Climatic Table compiled from 5 to 30 Years' Observations, 1941 to 1970

Month	Average pressure at M.S.L.	Temperature				Average humidity		Average cloud amount		Rain		Wind direction 0700									Wind direction 1300									Mean wind speed		No. of days with wind 28 kts. or more	No. of days with dawn fog	No. of days with thunder
		Average daily max.	Average monthly max.	Average daily min.	Average monthly min.	0700	1300	0700	1300	Average fall	No. of days with 1 mm or more	Percentage of observations from N	NE	E	SE	S	SW	W	NW	Calm	Percentage of observations from N	NE	E	SE	S	SW	W	NW	Calm	0700	1300			
	mb	°C	°C	°C	°C	%	%	Oktas		mm																			Knots				
January	1012	28	31	22	19	86	72	5	4	1	⊕	6	41	39	1	1	0	0	4	8	1	17	54	7	10	6	2	3	0	7	13	⊕	⊕	0
February	1011	28	31	22	20	85	70	5	3	1	⊕	2	36	50	3	1	1	0	1	6	1	17	65	7	5	3	1	0	0	6	12	⊕	⊕	0
March	1011	29	33	23	22	85	69	5	4	22	2	1	27	48	7	5	3	1	1	7	1	12	53	12	11	4	1	1	1	7	12	⊕	0	⊕
April	1009	32	35	25	23	85	68	5	4	14	2	2	21	36	8	8	10	4	3	8	1	9	38	17	19	10	3	1	2	6	9	0	0	⊕
May	1008	32	35	25	22	88	72	6	5	236	8	4	17	17	8	6	21	14	6	7	1	7	18	14	18	19	16	6	1	5	8	0	0	1
June	1007	31	33	24	21	90	79	6	6	239	12	2	4	4	1	3	46	26	5	9	0	3	8	6	12	38	24	7	2	6	10	⊕	0	1
July	1007	29	31	23	21	93	81	6	6	235	13	3	5	3	1	1	42	30	6	9	0	2	3	4	11	50	25	4	1	7	11	⊕	0	1
August	1007	29	32	23	21	93	82	6	6	252	14	1	2	2	1	3	46	28	5	12	1	1	3	4	9	52	23	5	2	6	10	0	⊕	⊕
September	1008	29	32	23	21	93	83	6	6	215	11	4	7	7	2	4	31	25	6	14	1	2	6	5	10	43	26	6	1	6	9	0	0	⊕
October	1009	29	31	23	21	94	82	6	6	241	12	10	25	16	2	4	21	11	8	3	1	7	24	11	12	29	10	5	1	5	8	0	⊕	⊕
November	1010	28	31	22	20	91	76	5	6	67	5	12	34	29	3	2	4	3	9	4	2	13	40	11	10	13	6	4	1	5	8	0	⊕	⊕
December	1011	28	31	21	19	87	73	5	5	22	2	7	37	41	2	2	1	2	6	2	2	14	53	8	11	6	3	3	0	5	8	0	⊕	0
Means	1009	29	35•	23	19••	89	76	6	5	—	—	6	21	24	3	3	19	12	5	7	1	9	30	9	11	23	12	4	1	6	10	—	—	—
Totals	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Extreme values	—	—	38†	—	15††	—	—	—	—	1545	81	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	3	4
No. of years' observations		28				15	15	12	12	30	30	9									11									5	15	25	25	25

•Mean of highest each year.
••Mean of lowest each year.

†Highest recorded temperature.
††Lowest recorded temperature.

⊕Rare.

Source: M.O. Bracknell; H.D. Taunton.

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5.149—HO CHI MINH CITY. 10° 49′ N, 106° 39′ E. Height above Mean Sea Level—7 m

WMO No. 48900

Climatic Table compiled from 17 to 30 Years' Observations, 1941 to 1970

Month	Average pressure at M.S.L.	Temperature				Average humidity		Average cloud amount		Rain		Wind direction																		Mean wind speed		No. of days with strong wind ††	No. of days with fog around dawn	No. of days with thunder
		Average daily max.	Absolute max.	Average daily min.	Absolute monthly min.	ϕ	—	0700	1300	Average fall	No. of days with 1 mm or more	Percentage of observations from									Percentage of observations from												
												N	NE	E	SE	S	SW	W	NW	Calm	N	NE	E	SE	S	SW	W	NW	Calm		
	mb	°C	°C	°C	°C	%	%	Oktas		mm.																				Knots		‡		
January	1012	32	37	21	14	70		4	5	7	1																				0	2	⊕
February	1011	33	39	22	16	69		4	5	13	1																				0	6	⊕
March	1010	34	39	23	17	69		4	5	12	2																				0	5	⊕
April	1009	34	40	25	20	72		4	5	65	4																				0	0	5
May	1008	33	39	24	21	79		5	6	196	15																				0	0	10
June	1007	32	38	24	21	82		5	6	285	19																				0	1	10
July	1008	31	35	24	19	82		5	6	242	18																				0	2	7
August	1007	32	36	24	20	83		5	6	277	21																				0	2	6
September	1008	31	36	24	20	85		6	6	292	20																				0	2	7
October	1009	31	36	23	20	85		5	6	259	18																				0	1	6
November	1010	31	35	23	17	81		5	6	122	9																				0	2	3
December	1011	31	36	22	14	76		5	5	37	4																				0	7	1
Means	1009	32	—	23	—••	78	—	47	56	—	—																				—	—	—
Totals	—	—	—	—	—	—	—	—	—	1807	132	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0	30	56
Extreme values	—	—	40†		14††	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
No. of years' observations	30							20	20	30	30																				17	17	17

•Mean of highest each year.
••Mean of lowest each year.

†Highest recorded temperature.
††Lowest recorded temperature.

⊕Rare.
ϕMean of all observations.
‡Force 6 or more.

Source: M.O. Bracknell; H.D. Taunton.

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6.169—DA NANG. 16° 02′ N, 108° 11′ E. Height above Mean Sea Level—7 m

WMO No. 48855

Climatic Table compiled from 17 to 30 Years' Observations, 1941 to 1970

Month	Average pressure at M.S.L.	Average Temperature				Average humidity		Average cloud amount		Rain		Wind direction																		Mean wind speed		No. of days with wind 28 kts. or more	No. of days with fog at dawn	No. of days with thunder
												0700										1300											
												Percentage of observations from										Percentage of observations from											
		Daily max.	Monthly max.	Daily min.	Monthly min.	0700	1300	0700	1300	Average fall	No. of days with 1 mm or more	N	NE	E	SE	S	SW	W	NW	Calm		N	NE	E	SE	S	SW	W	NW	Calm					
	mb	°C	°C	°C	°C	%	%	Oktas		mm.																				Knots				
January	1016	25	29	19	15	93	75	6	5	110	13	11	7	5	4	6	4	9	18	36		26	13	24	11	1	0	1	18	6		3	6	0	1	0
February	1014	26	31	20	16	92	71	5	5	43	8	10	5	5	5	8	4	6	17	40		24	10	38	15	1	0	1	10	1		3	7	⊕	1	0
March	1012	28	33	21	18	92	59	5	4	26	5	9	4	5	10	11	4	5	16	36		20	7	49	13	1	0	1	7	2		3	7	0	1	1
April	1010	31	36	23	20	89	67	5	4	31	5	7	4	5	9	19	6	5	13	32		15	8	58	11	0	1	0	6	1		2	6	0	●	5
May	1007	33	37	25	23	83	63	5	4	62	8	4	3	3	7	26	10	5	7	35		18	9	53	9	3	1	0	5	2		2	6	0	●●	10
June	1005	34	38	25	23	81	60	5	5	78	9	5	3	3	5	18	9	6	6	45		19	11	34	6	6	6	3	8	7		2	5	0	●	9
July	1004	34	38	25	23	81	58	5	5	76	9	3	3	3	5	20	10	6	5	45		16	11	35	7	9	6	1	9	6		2	4	0	1	7
August	1004	34	37	25	23	85	59	5	5	116	13	5	3	3	4	15	9	4	5	52		25	12	23	5	9	7	3	7	9		2	4	0	●⊕	7
September	1007	32	35	24	22	89	68	5	5	393	17	4	3	4	4	12	6	7	5	55		36	9	20	7	3	4	2	10	9		2	4	0	0	7
October	1011	29	32	23	20	92	76	6	6	577	22	11	8	6	3	9	6	8	9	40		34	16	18	5	2	2	2	13	8		2	5	⊕	⊕	2
November	1014	27	30	21	17	91	76	6	6	364	20	14	11	7	4	6	4	9	12	33		32	21	17	6	0	0	2	15	7		3	7	●	1	0
December	1016	25	29	20	16	93	78	6	6	221	18	18	8	5	3	5	5	10	17	29		36	12	16	7	1	0	2	20	6		3	7	●	●	0
Means	1010	30	39*	23	14**	88	68	5	5	—	—	8	5	4	5	13	7	7	11	40		25	12	32	9	3	2	1	11	5		2	6	—	—	—
Totals	—	—	—	—	—	—	—	—	—	2097	147	—	—	—	—	—	—	—	—	—		—	—	—	—	—	—	—	—	—		—	—	1	6	48
Extreme values	—	—	41†	—	10††	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		—	—	—	—	—	—	—	—	—		—	—	—	—	—
No. of years' observations	30					17	17	17	17	30	30	17										17										22	22	30	30	30

*Mean of highest each year.
**Mean of lowest each year.

†Highest recorded temperature.
††Lowest recorded temperature.

⊕Rare

Source: M.O. Bracknell; H.D. Taunton.

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6.177—QUANG TRI. 16° 44′ N, 107° 11′ E. Height above Mean Sea Level—11 m

WMO No. 48851

Climatic Table compiled from 9 to 27 Years' Observations, 1931 to 1970

Month	Average pressure at M.S.L.	Average temperature: Daily max.	Average temperature: Monthly max.	Average temperature: Daily min.	Average temperature: Monthly min.	Average humidity: Φ	Average humidity: —	Average cloud amount: Φ	Average cloud amount: No. of days clear at 1300	Rain: Average fall	Rain: No. of days with 1 mm or more	Wind direction Φ: Percentage of observations from N	NE	E	SE	S	SW	W	NW	Calm	Wind direction —: Percentage of observations from N	NE	E	SE	S	SW	W	NW	Calm	Mean wind speed 0700	Mean wind speed 1300	No. of days with strong wind 28 kts. or more	No. of days with fog at dawn	No. of days with thunder
	mb	°C	° C	°C	°C	%	%	Oktas		mm.																				Knots				
January	1017	23	34	17	13	89		6	3	171	8	19	16	12	7	1	3	4	27	11											0	6	0
February	1015	24	32	18	14	90		6	3	61	6	19	13	12	4	2	3	7	26	14											0	5	0
March	1013	26	36	19	14	87		6	5	73	6	18	11	13	8	2	4	7	22	15											●	4	2
April	1010	31	37	22	18	85		5	5	61	6	13	13	12	10	2	8	7	12	23											0	3	7
May	1007	33	37	24	21	80		5	3	102	9	3	6	9	14	5	19	16	9	19											●	1	12
June	1004	34	37	25	23	74		5	2	72	8	2	2	3	6	4	34	34	7	8											1	0	8
July	1003	34	37	25	23	73		5	5	70	8	1	1	2	7	3	36	36	5	9											1	0	5
August	1004	34	37	25	23	72		5	2	98	10	1	2	3	6	3	37	34	4	10											●	1	5
September	1007	32	36	23	22	84		5	2	375	17	6	9	8	9	2	11	18	17	20											1	3	4
October	1012	28	33	22	19	86		6	2	571	19	14	17	12	13	2	2	11	18	11											0	5	3
November	1015	26	30	20	17	88		6	1	519	19	20	19	13	11	3	2	4	17	11											0	3	1
December	1016	23	28	18	14	87		6	2	324	18	16	19	15	12	1	2	3	21	12											0	2	0
Means	1010	29	38*	22	12**	83	—	6	—	—	—	11	11	9	9	3	13	15	15	14											—	—	—	—	—
Totals	—	—	—	—	—	—	—	—	35	2497	134	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	33	47
Extreme values	—	—	41†	—	9††	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
No. of years' observations	27											10																				9	9	12

*Mean of highest each year.
**Mean of lowest each year.

†Highest recorded temperature.
††Lowest recorded temperature.

●Rare.
ΦAll observations.

Source: M.O. Bracknell; H.D. Taunton.

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7.89—HAIPHONG. 20° 48′ N, 106° 38′ E. Height above Mean Sea Level—119m

WMO No. 48826

Climatic Table compiled from 9 to 30 Years' Observations, 1941 to 1970

Month	Average pressure at M.S.L.	Average temperatures				Average humidity		Average cloud amount		Rain		Wind direction									Mean wind speed		No. of days with wind 28 kts. or more	No. of days with fog at dawn	No. of days with thunder
												0700									1300						
												Percentage of observations from									Percentage of observations from						
		Daily max.	Monthly max.	Daily min.	Monthly min.	0700	1300	0700	1300	Average fall	No. of days with 1 mm or more	N	NE	E	SE	S	SW	W	NW	Calm	N	NE	E	SE	S	SW	W	NW	Calm	0700	1300			
	mb	°C	°C	°C	°C	%	%	Oktas		mm.																			Knots				
January	1019	20	27	14	9	91	67	5	6	28	7	7	31	31	15	3	0	0	8	5	8	9	20	22	19	5	6	6	5	5	9	⊕	3	⊕
February	1017	20	27	14	9	93	75	5	6	43	7	7	24	41	19	1	0	0	2	6	6	6	25	28	20	6	2	3	4	4	9	⊕	5	⊕
March	1014	22	29	17	12	92	79	5	6	48	7	10	21	30	24	9	1	0	1	4	6	10	20	28	26	2	3	3	2	5	9	1	6	3
April	1011	26	32	21	15	92	78	6	6	81	7	4	16	31	30	7	0	5	4	3	3	5	14	27	43	2	2	2	2	6	10	1	3	3
May	1007	31	35	24	21	91	73	5	6	201	10	11	12	12	16	28	7	2	9	3	4	2	12	23	51	2	3	1	2	6	10	1	1	7
June	1003	32	36	26	22	92	74	6	6	239	12	7	13	14	8	31	22	3	2	0	2	2	11	16	45	7	6	5	6	6	11	2	1	9
July	1003	32	36	26	22	91	75	6	6	295	14	9	5	9	10	20	18	10	12	7	8	2	9	11	30	13	12	10	5	6	10	2	1	10
August	1004	32	35	25	22	93	75	6	6	330	15	9	14	13	6	15	9	10	16	8	4	8	10	11	15	18	13	13	8	5	9	1	1	9
September	1008	31	34	34	21	92	72	6	5	311	17	17	25	22	9	8	2	2	8	7	6	16	15	20	20	5	7	8	3	4	8	1	1	8
October	1013	29	33	22	18	90	68	5	5	122	8	22	29	17	2	6	2	4	11	7	13	17	13	18	18	3	8	7	3	5	9	1	1	2
November	1017	26	31	18	13	88	62	4	5	56	3	21	46	19	3	3	0	1	4	3	14	16	13	19	19	4	5	7	3	4	8	⊕	⊕	1
December	1019	22	28	16	11	87	65	5	6	28	3	17	41	21	7	1	1	1	6	5	8	13	18	19	14	8	8	8	4	4	8	⊕	⊕	0
Means	1011	27	37*	21	8**	91	72	5	6	—	—	12	23	22	12	11	5	3	7	5	7	9	15	20	27	6	6	6	4	5	9	—	—	—
Totals	—	—	—	—	—	—	—	—	—	1782	110	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11	25	53
Extreme values	—	—	42†	—	6††	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
No. of years' observations	30											9									10									28	28	27	27	26

*Mean of highest each year.
**Mean of lowest each year.

†Highest recorded temperature.
††Lowest recorded temperature.

⊕Rare.

Source: M.O. Bracknell; H.D. Taunton.

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8.136—BEIHAI. 21° 29′ N, 109° 06′ E. Height above Mean Sea Level—3 m

WMO No. 59644

Climatic Table compiled from 9 to 40 Years' Observations, 1931 to 1965

Month	Average pressure at M.S.L.	Average temperatures				Average humidity		Cloud No. of days		Rain		Wind direction — Percentage of observations from									Wind direction — Percentage of observations from									Mean wind speed		No. of days with	No. of days with fog dawn
		Daily max.	Monthly max.	Daily min.	Monthly min.	ϕ	—	Clear	Cloudy	Average fall	No. of days with 1 mm or more	N	NE	E	SE	S	SW	W	NW	Calm	N	NE	E	SE	S	SW	W	NW	Calm				
	mb	°C	°C	°C	°C	%	%			mm.																				Knots			
January	—	17	24	11	5	85		2	15	30	7																					1
February	—	18	26	12	6	88		3	16	38	9																					3
March	—	21	28	15	9	88		2	17	71	11																					●
April	—	26	32	20	14	88		2	14	102	10																					●
May	—	31	34	24	20	83		2	11	73	10																					0
June	—	32	34	26	22	82		1	8	292	14																					0
July	—	32	35	26	23	84		2	4	503	16																					0
August	—	32	34	26	23	86		2	4	465	17																					0
September	—	31	34	25	22	85		2	6	255	13																					0
October	—	28	32	21	16	86		4	6	91	7																					0
November	—	25	29	18	11	83		3	10	48	5																					0
December	—	20	25	14	7	86		2	13	46	6																					1
Means	—	26	36*	20	9**	85	—	—	—	—	—																			—	—	—
Totals	—	—	—	—	—	—	—	27	124	2114	125	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5
Extreme values	—	—	37†	—	0††	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
No. of years' observations	—	15	22	15	22	9	—	15	15	40	40																					15

*Mean of highest each year.
**Mean of lowest each year.

†Highest recorded temperature.
††Lowest recorded temperature.

ϕ All observations.

Source: M.O. Bracknell; H.D. Taunton.

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9.25—HAIKOU. 20° 00′ N, 110° 25′ E. Height above Mean Sea Level—3 m

WMO No. 59758

Climatic Table compiled from 14 to 25 Years' Observations, 1931 to 1966

Month	Pressure at M.S.L.	Temperature				Average humidity		Average cloud amount		Rain		Wind direction																		Mean wind speed		No. of days with	No. of days with fog at dawn
												Percentage of observations from										Percentage of observations from											
		Average daily max.	Average monthly max	Average daily min.	Average monthly min.	Φ	—	Φ	—	Average fall	No. of days with 1 mm or more	N	NE	E	SE	S	SW	W	NW	Calm	N	NE	E	SE	S	SW	W	NW	Calm				
	mb	°C	°C	°C	°C	%	%	Oktas		mm.																				Knots			
January		20	28	15	10	89		6		25	6																						14
February		22	30	16	11	89		6		30	8																						13
March		25	34	18	13	87		7		48	7																						5
April		27	37	22	16	85		6		97	9																						2
May		33	37	26	22	83		4		155	11																						0
June		34	37	25	23	83		4		201	12																						0
July		33	37	25	23	83		4		206	12																						1
August		33	36	25	23	85		4		188	11																						1
September		31	34	25	23	87		5		251	12																						0
October		26	33	23	18	84		4		173	9																						0
November		26	30	19	15	83		4		79	6																						1
December		23	28	17	12	86		5		46	6																						7
Means	—	27	38*	21	9**	85	—	5	—	—	—																				—	—
Totals	—	—	—	—	—	—	—	—	—	1499	109	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	44
Extreme values	—	—	41†	—	6††	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
No. of years' observations		19	19	19	19	14	—	14	—	24	25																						19

*Mean of highest each year.
**Mean of lowest each year.

†Highest recorded temperature.
††Lowest recorded temperature.

ϕAll observations.

Source: M.O. Bracknell; H.D. Taunton.

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YUNG-NING (NANNING FU). 22° 48′ N, 108° 18′ E. Height above Mean Sea Level—75 m

WMO 59431

Climatic Table compiled from 30 Years' Observations, 1921 to 1950

Month	Pressure at M.S.L.	Temperature: Average daily temp.	Temperature: Absolute max.	Temperature: Average daily range	Temperature: Absolute min.	Average humidity: ϕ	Average humidity: —	Average cloud amount: Average sunshine (hours)	Average cloud amount: No. of cloudy days	Rain: Average fall	Rain: No. of days with 1 mm or more	Wind direction — Percentage of observations from: N	NE	E	SE	S	SW	W	NW	Calm	Wind direction — Percentage of observations from: N	NE	E	SE	S	SW	W	NW	Calm	Mean wind speed: Dominant direction	Mean wind speed: Mean speed	No. of days with wind 28 kts. or more	No. of days with fog at dawn	No. of days with thunder
	mb	°C	°C	°C	°C	%	%			mm.																				Knots				
January	—	14	29	7	2	77	—	71	21	32	6																		E	4	2	1	⊕
February		15	33	6	2	77		67	21	55	8																		E	5	1	1	⊕
March		18	35	6	4	80		75	24	48	8																		E	5	⊕	2	3
April		23	36	7	8	78		109	17	79	11																		ESE	4	1	1	5
May		27	37	7	15	79		164	13	167	14																		SE	4	0	⊕	10
June		28	37	6	16	81		178	18	214	15																		SE	5	⊕	⊕	12
July		29	38	6	19	81		214	15	217	16																		SE	5	0	⊕	13
August		28	39	6	20	84		179	15	225	16																		E	4	0	⊕	14
September		28	39	7	14	76		181	11	109	9																		E	3	0	1	6
October		23	36	8	10	71		216	12	105	8																		E	3	⊕	1	1
November		20	32	8	4	72		153	12	37	6																		E	3	1	⊕	0
December		16	31	7	3	75		119	14	34	6																		E	3	2	1	⊕
Means	—	22	—	7	—	78	—	—	—	—	—																		E	4	—	—	—
Totals	—	—	—	—	—	—	—	1726	193	1322	123	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	9	64
Extreme values	—	—	39†	—	2††	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
No. of years' observations	30																												30				

†Highest recorded temperature.
††Lowest recorded temperature.

⊕Rare.
ϕAll observations.

Source: M.O. Bracknell; H.D. Taunton.

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12.23—MACAU. 22° 12′ N, 113° 33′ E. Height above Mean Sea Level—66 m

WMO No. 45011

Climatic Table compiled from 30 Years' Observations, 1931 to 1960

Month	Average pressure at M.S.L.	Temperature				Average humidity		Cloud		Rain		Wind direction																				Mean wind speed		No. of days with	No. of days with	
		Average daily max.	Absolute max.	Average daily min.	Absolute min.	0900	1500	0900	1500	Average fall	No. of days with 1 mm or more	0900 Percentage of observations from									1500 Percentage of observations from																
												N	NE	E	SE	S	SW	W	NW	Calm	N	NE	E	SE	S	SW	W	NW	Calm					
	mb	°C	°C	°C	°C	%	%	Oktas		mm.																					Knots				
January	1020	16	29	5	— 2	76				26	4																								
February	1018	15	30	6	+ 2	82				54	6																								
March	1016	17	32	9	5	85				83	8																								
April	1013	22	35	13	9	86				156	9																								
May	1009	26	37	19	14	86				263	13																								
June	1005	28	36	22	18	86				346	16																								
July	1005	29	39	22	19	85				292	16																								
August	1005	29	38	22	20	84				293	15																								
September	1008	28	38	21	16	80				205	11																								
October	1014	25	35	16	10	74				57	5																								
November	1017	21	34	11	5	73				43	3																								
December	1019	17	29	7	0	74				28	3																								
Means	1012	23	—	15	—	81	—	—	—	—	—																					—	—	—	—	—
Totals	—	—	—	—	—	—	—	—	—	1846	109	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Extreme values	—	—	39†	—	— 2††	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
No. of years' observations	30																																		

†Highest recorded temperature.
††Lowest recorded temperature.

φ All observations.

Source: M.O. Bracknell; H.D. Taunton.

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12.93—GUANGZHOU. 23° 06′ N, 113° 18′ E. Height above Mean Sea Level—9 m

WMO No. 59287

Climatic Table compiled from 12 to 24 Years' Observations, 1931 to 1960

Month	Average pressure at M.S.L.	Average temperatures				Average humidity		Average cloud amount		Rain		Wind direction ◊ Percentage of observations from									Wind direction — Percentage of observations from									Mean wind speed		No. of days with wind 28 kts. or more	No. of days with fog at dawn	No. of days with thunder
		Daily max.	Monthly max.	Daily min.	Monthly min.	0700	1300	0700	1300	Average fall	No. of days with 1 mm or more	N	NE	E	SE	S	SW	W	NW	Calm	N	NE	E	SE	S	SW	W	NW	Calm	0700	1300			
	mb	°C	°C	°C	°C	%	%	Oktas		mm.																				Knots				
January	1023	17	25	10	4	75	52	6	4	46	5	55	14	5	5	4	1	0	2	14										2	4	3	2	●
February	1021	18	27	11	5	80	63	6	6	70	8	43	16	7	10	8	1	0	2	13										1	4	1	2	1
March	1018	20	28	14	8	83	70	6	6	103	10	30	15	9	18	9	1	0	3	15										1	4	0	3	2
April	1014	25	31	19	13	88	69	7	6	157	12	19	5	15	30	18	2	0	1	10										2	4	1	2	4
May	1010	30	33	23	19	90	68	7	6	251	16	13	4	14	34	24	3	0	2	6										1	4	0	1	6
June	1007	31	34	25	22	91	63	6	6	265	17	5	5	14	29	30	6	1	2	8										1	3	●	●	7
July	1006	32	36	25	23	91	62	5	6	269	16	2	6	23	25	24	7	2	3	8										2	4	1	0	8
August	1005	33	36	25	23	90	61	5	5	234	14	6	6	20	21	20	12	3	4	8										2	4	0	0	8
September	1010	32	35	23	21	84	56	5	4	133	10	24	14	17	14	9	5	2	6	9										1	4	0	0	4
October	1016	29	33	20	15	76	50	4	3	63	5	44	19	7	5	5	2	1	3	14										1	4	1	0	1
November	1020	25	29	16	10	75	47	4	3	38	4	50	17	4	4	4	1	0	2	18										1	4	1	●	●
December	1021	21	26	12	5	74	51	5	3	36	4	45	17	5	6	3	0	0	3	21										1	4	2	1	0
Means	1014	26	36*	19	3**	83	59	5	5	—	—	28	11	12	17	13	3	1	3	12										1	4	—	—	—
Totals	—	—	—	—	—	—	—	—	—	1665	121	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10	11	41
Extreme values	—	—	38†	—	1††	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
No. of years' observations	24											12																		18	18	24	24	24

*Mean of highest each year.
**Mean of lowest each year.

†Highest recorded temperature.
††Lowest recorded temperature.

●Rare.
◊All observations.

Source: M.O. Bracknell; H.D. Taunton.

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13.109—HONG KONG. 22° 18′ N, 114° 10′ E. Height above Mean Sea Level—32 m

WMO No. 45005

Climatic Table compiled from 24 to 30 Years' Observations, 1941 to 1970

Month	Average pressure at M.S.L.	Average temperatures				Average humidity		Average cloud amount		Rain		Wind direction																		Mean wind speed		No. of days with wind 28 kts. or more	No. of days with fog at dawn	No. of days with thunder
												0800									1400													
												Percentage of observations from									Percentage of observations from													
		Daily max.	Monthly max.	Daily min.	Monthly min.	0800	1400	0800	1400	Average fall	No. of days with 1 m or more	N	NE	E	SE	S	SW	W	NW	Calm	N	NE	E	SE	S	SW	W	NW	Calm	0700	1300			
	mb	°C	°C	°C	°C	%	%	Oktas		mm.																				Knots				
January	1020	18	24	13	7	77	67	6	5	32	6	14	23	36	6	2	1	2	4	12	9	10	41	12	2	7	11	5	3	8	9	0	4	●
February	1018	18	25	13	8	82	73	6	5	47	8	10	20	45	9	1	2	1	2	10	6	14	49	10	3	4	8	3	3	8	9	0	5	●●
March	1016	20	27	16	11	84	75	7	6	72	11	6	19	49	8	2	2	2	3	9	5	13	43	19	5	4	6	3	2	9	10	0	9	2
April	1013	24	29	20	15	85	78	6	6	136	12	3	17	47	8	6	4	3	4	8	3	10	46	9	10	10	8	2	2	9	10	0	8	4
May	1009	28	32	23	20	86	79	6	6	293	16	2	13	36	8	8	13	7	5	8	1	8	36	8	13	22	9	1	2	8	10	0	2	4
June	1006	30	33	25	23	85	78	6	6	401	21	3	8	23	9	12	21	11	4	9	2	4	23	12	15	31	10	1	2	7	9	0	1	5
July	1005	31	33	26	24	85	76	6	6	372	19	3	6	17	10	11	19	16	6	12	2	3	21	10	17	29	12	3	3	6	10	1	1	5
August	1006	30	33	25	23	86	76	5	5	371	17	5	10	26	11	6	13	13	6	10	2	8	30	11	10	19	16	2	2	7	9	1	3	6
September	1008	30	33	25	22	81	72	5	5	279	15	11	21	32	8	3	5	8	4	8	5	9	38	15	7	10	13	2	1	8	10	1	2	3
October	1014	27	31	22	19	73	65	5	5	99	8	18	31	31	4	1	1	4	4	6	10	12	44	16	3	4	7	3	1	9	10	●	1	1
November	1017	24	28	19	13	71	63	5	4	43	5	21	30	29	2	1	1	2	4	10	17	13	37	13	1	5	8	4	2	8	9	⊕	1	●
December	1020	20	25	15	9	73	64	4	4	25	5	19	24	34	5	1	1	3	4	9	15	11	36	13	1	6	11	4	3	7	9	0	2	⊕
Means	1013	25	34*	20	6**	81	72	6	5	—	—	10	18	34	7	5	7	6	4	9	6	10	38	11	7	13	10	3	2	8	10	—	—	—
Totals	—	—	—	—	—	—	—	—	—	2170	143	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	39	31
Extreme values	—	—	36†	—	3††	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
No. of years' observations	30											24									26									26	26	27	30	30

*Mean of highest each year.
**Mean of lowest each year.

†Highest recorded temperature.
††Lowest recorded temperature.

⊕Rare.

Source: M.O. Bracknell; H.D. Taunton.

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METEOROLOGICAL CONVERSION TABLE AND SCALES

Fahrenheit to Celsius

°Fahrenheit

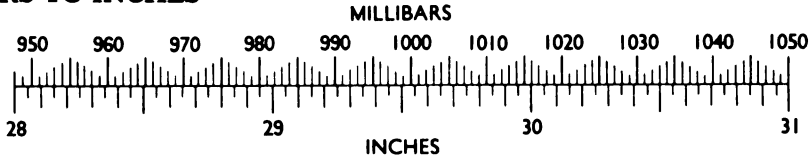
	0	1	2	3	4	5	6	7	8	9
°F				Degrees Celsius						
−100	−73·3	−73·9	−74·4	−75·0	−75·6	−76·1	−76·7	−77·2	−77·8	−78·3
−90	−67·8	−68·3	−68·9	−69·4	−70·0	−70·6	−71·1	−71·7	−72·2	−72·8
−80	−62·2	−62·8	−63·3	−63·9	−64·4	−65·0	−65·6	−66·1	−66·7	−67·2
−70	−56·7	−57·2	−57·8	−58·3	−58·9	−59·4	−60·0	−60·6	−61·1	−61·7
−60	−51·1	−51·7	−52·2	−52·8	−53·3	−53·9	−54·4	−55·0	−55·6	−56·1
−50	−45·6	−46·1	−46·7	−47·2	−47·8	−48·3	−48·9	−49·4	−50·0	−50·6
−40	−40·0	−40·6	−41·1	−41·7	−42·2	−42·8	−43·3	−43·9	−44·4	−45·0
−30	−34·4	−35·0	−35·6	−36·1	−36·7	−37·2	−37·8	−38·3	−38·9	−39·4
−20	−28·9	−29·4	−30·0	−30·6	−31·1	−31·7	−32·2	−32·8	−33·3	−33·9
−10	−23·3	−23·9	−24·4	−25·0	−25·6	−26·1	−26·7	−27·2	−27·8	−28·3
−0	−17·8	−18·3	−18·9	−19·4	−20·0	−20·6	−21·1	−21·7	−22·2	−22·8
+0	−17·8	−17·2	−16·7	−16·1	−15·6	−15·0	−14·4	−13·9	−13·3	−12·8
10	−12·2	−11·7	−11·1	−10·6	−10·0	−9·4	−8·9	−8·3	−7·8	−7·2
20	−6·7	−6·1	−5·6	−5·0	−4·4	−3·9	−3·3	−2·8	−2·2	−1·7
30	−1·1	−0·6	0	+0·6	+1·1	+1·7	+2·2	+2·8	+3·3	+3·9
40	+4·4	+5·0	+5·6	6·1	6·7	7·2	7·8	8·3	8·9	9·4
50	10·0	10·6	11·1	11·7	12·2	12·8	13·3	13·9	14·4	15·0
60	15·6	16·1	16·7	17·2	17·8	18·3	18·9	19·4	20·0	20·6
70	21·1	21·7	22·2	22·8	23·3	23·9	24·4	25·0	25·6	26·1
80	26·7	27·2	27·8	28·3	28·9	29·4	30·0	30·6	31·1	31·7
90	32·2	32·8	33·3	33·9	34·4	35·0	35·6	36·1	36·7	37·2
100	37·8	38·3	38·9	39·4	40·0	40·6	41·1	41·7	42·2	42·8
110	43·3	43·9	44·4	45·0	45·6	46·1	46·7	47·2	47·8	48·3
120	48·9	49·4	50·0	50·6	51·1	51·7	52·2	52·8	53·3	53·9

Celsius to Fahrenheit

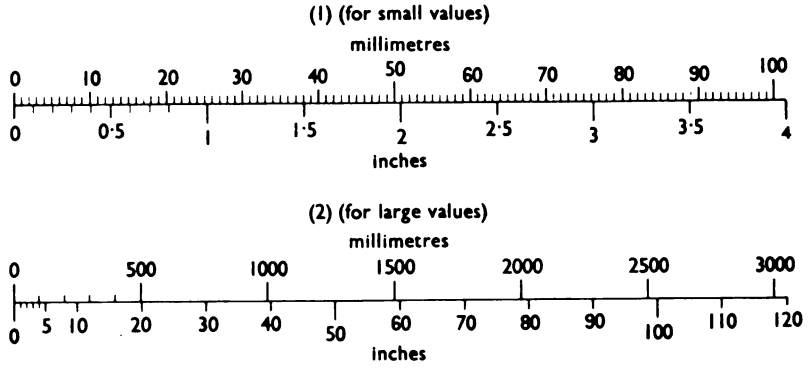
°Celsius

	0	1	2	3	4	5	6	7	8	9
°C				Degrees Fahrenheit						
−70	−94·0	−95·8	−97·6	−99·4	−101·2	−103·0	−104·8	−106·6	−108·4	−110·2
−60	−76·0	−77·8	−79·6	−81·4	−83·2	−85·0	−86·8	−88·6	−90·4	−92·2
−50	−58·0	−59·8	−61·6	−63·4	−65·2	−67·0	−68·8	−70·6	−72·4	−74·2
−40	−40·0	−41·8	−43·6	−45·4	−47·2	−49·0	−50·8	−52·6	−54·4	−56·2
−30	−22·0	−23·8	−25·6	−27·4	−29·2	−31·0	−32·8	−34·6	−36·4	−38·2
−20	−4·0	−5·8	−7·6	−9·4	−11·2	−13·0	−14·8	−16·6	−18·4	−20·2
−10	+14·0	+12·2	+10·4	+8·6	+6·8	+5·0	+3·2	+1·4	−0·4	−2·2
−0	32·0	30·2	28·4	26·6	24·8	23·0	21·2	19·4	+17·6	+15·8
+0	32·0	33·8	35·6	37·4	39·2	41·0	42·8	44·6	46·4	48·2
+10	50·0	51·8	53·6	55·4	57·2	59·0	60·8	62·6	64·4	66·2
20	68·0	69·8	71·6	73·4	75·2	77·0	78·8	80·6	82·4	84·2
30	86·0	87·8	89·6	91·4	93·2	95·0	96·8	98·6	100·4	102·2
40	104·0	105·8	107·6	109·4	111·2	113·0	114·8	116·6	118·4	120·2
50	122·0	123·8	125·6	127·4	129·2	131·0	132·8	134·6	136·4	138·2

MILLIBARS TO INCHES



MILLIMETRES TO INCHES



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CHAPTER 2

MAIN ROUTE FROM SINGAPORE TO HONG KONG—PASSAGES—ISLANDS, BANKS AND DANGERS, INCLUDING KEPULAUAN ANAMBAS

SINGAPORE TO HONG KONG

Charts 5307, 4508

Passages

2.1

For general information about passages through the China Sea, see *Ocean Passages for the World.*

In the SE part of the South China Sea, W of Palawan Island, there is an incompletely surveyed region encumbered with numerous coral reefs and shoals. This area, which is described in *China Sea Pilot Vol II*, should be avoided by all vessels.

When proceeding from Singapore to Hong Kong, vessels are recommended to follow one of the principal routes mentioned below.

(1) *Main route* (1450 miles) between Singapore and Hong Kong for fully powered vessels at all seasons leads NE, from a position between Pulau Aur (3.35) (2° 26′ N, 104° 32′ E) and Kepulauan Anambas (2.5), and passes 20 miles NW of Udang Oilfield (2.84a) (4° 02′ N, 106° 28′ E) and 25 miles SE of Charlotte Bank (2.85) (7° 08′ N, 107° 35′ E); then passes between Paracel Islands (2.92) and Macclesfield Bank (2.118) thence to Hong Kong passing 15 miles W of Helen Shoal (2.120) (19° 12′ N, 113° 53′ E).

(2) *Palawan Passage route* (1925 miles) recommended for low-powered vessels during the NE Monsoon. See *China Sea Pilot Vol II.*

Both the above routes are described in *Ocean Passages for the World.*

2.2

Anchorage is possible in some instances, weather permitting, on some of the shallower banks where sand or clay bottom may be found; most of the banks and reefs covered by this chapter are of coral or sand formation. Particular care must be taken in the monsoon seasons, not only for changes in wind and rain, but also for the variations of current direction and strength.

Of the islands W of Main route to Hong Kong, Con Son (Archipel de Poulo Condore) (5.87) offers the best anchorage and shelter, with bays that will accommodate large vessels. The other groups of islands offer only temporary shelter according to favourable winds.

KEPULAUAN TUJUH

Charts 1311, 1312, 2660a

2.3

Under the general name of Kepulauan Tujuh are all the islands belonging to Republic of Indonesia in the Eastern Archipelago, which lie in the S part of China Sea, N of the Equator. They consist of four groups known as Kepulauan Badas, Kepulauan Tambelan, Kepulauan Natuna and Kepulauan Anambas.

The best time to visit these islands is at the change of the monsoon, the spring being preferable. During the monsoons many of the islands are inaccessible on account of heavy surf, and the probability of favourable weather is small.

Kepulauan Badas, Kepulauan Tambelan and Kepulauan Natuna are described in *China Sea Pilot Vol II.*

2.4

Tidal streams and **currents.** HM Surveying Ship *Rifleman*, when surveying in the neighbourhood of these islands in fine weather with generally light winds, in 1862, observed that during the SW Monsoon period, from the middle of July to the middle of September, and also during the NE Monsoon period, in December, the tidal stream set to windward against the prevailing monsoon drift, for an uncertain period of each day.

The S stream began to run about 3 hours before high water at Terengganu and the N stream commenced about 4 hours after high water at Terengganu, but these were subject to an uncertainty of as much as 2 or 3 hours either way. The S stream usually ran for 13 or 14 hours, and the N stream for 10 or 11 hours.

At springs the tidal streams had rates of from 1 to 2 knots; at neaps they were weak and irregular.

KEPULAUAN ANAMBAS

Charts 1371, 1311, 3543

2.5

Kepulauan Anambas lie in the S part of China Sea on the E side of main route from Singapore to Hong Kong, 100 miles NE of Horsburgh Lighthouse situated at the E entrance to Singapore Strait. They consist of two principal groups, the SW group and the NE group, and numerous detached islets. See views on chart 1371.

These two groups are divided from one another by an imaginary line joining Pulau Airabu, Pulau Buan and Pulau Durai which lie 55 miles E and NE of Pulau Damar (2° 45′ N, 105° 23′ E) (2.7). All these islands form part of the SW group.

The higher peaks of Kepulauan Anambas have

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elevations of up to 565 m (1854 ft) and have dense forests which reach to the summits. Many of the islands are inhabited; the abundance of coconut plantations is a notable feature of these islands. The principal village is Terampa (2.82), situated on the N coast of Pulau Siantan, the SW island of the NE group.

The export of copra forms the main trade of the islands; sage is also exported, and the forests produce excellent timber. Besides agriculture and fishing the principal employment is the manufacture of sarongs and mats.

Fruit, goats and fowls can be obtained at the large villages which have regular communication by sea with Singapore.

2.6

Caution. Although the survey of 1893 did not discover any dangers in many of the passages between the islands, it was not of an exhaustive character. As a general rule vessels should therefore only use the channels between the groups of islands and not attempt passages between individual islands without local knowledge.

Floating islands, composed of grass, small trees and other debris from the rivers, are sometimes met in the neighbourhood of Kepulauan Anambas; in 1911 one floating island was reported to be 15 m long and from 3 to 6 m high.

KEPULAUAN ANAMBAS—SOUTH-WEST GROUP

Chart 1371

2.7

Pulau Damar (2° 45′ N, 105° 23′ E) is a steep barren rock, 82 m (269 ft) high, with depths of 55 m (30 fm) close round it. There is a small indentation on both its SW and NE sides where landing can be effected in fine weather. A little scanty vegetation exists near the top of the islet; the bold cliffs show white due to the guano deposited on them. A rock, with a depth of less than 2 m (6 ft) over it, lies close S of Pulau Damar.

Katoaka Rock, a coral shoal 4 cables in extent with a depth of 8·8 m (29 ft) over it, lies 19 miles SSE of Pulau Damar; less depths may exist on this shoal.

2.8

Tokong Malangbiru (2° 18′ N, 105° 36′ E), the SW of Kepulauan Anambas, lies 30 miles SSE of Pulau Damar. It is a white flat-topped barren rock, 33 m (108 ft) high, with steep cliffs at its E end. The rock is steep-to all round except close to its SW extremity where shallow water extends a short distance offshore.

Pulau Repong (2° 22′ N, 105° 53′ E), 17 miles ENE of Tokong Malangbiru, is covered with trees and has two peaks forming a high saddle, the E peak being the higher and having an elevation of 212 m (696 ft). It is fringed by a narrow reef, the edge of which is steep.

2.9

Pulau Bawah is a group of uninhabited islets and rocks lying 13 miles NE of Pulau Repong. The group rises from depths of over 55 m (30 fm) and is surrounded by a reef. The N and largest islet has a wooded summit 134 m (440 ft) high, and close N of it there is a pyramidal-shaped rock 67 m (220 ft) high. The S islet of the group is 125 m (410 ft) high. Between the two principal islets there are a few low bushy islets and rocks lying on the edge of the reef which joins them.

Pulau Jemaja

2.10

Pulau Jemaja (Djemadja) is the principal and largest island of the SW group of Kepulauan Anambas. **Tanjung Lelan** (2° 49′ N, 105° 44′ E), the S extremity of the island, lies 22 miles ENE of Pulau Damar. The island is densely wooded and mountainous, attaining an elevation of 466 m (1529 ft) in **Gunung Tujuh** situated 10 miles NNE of Tanjung Lelan; the peaks in the N part of the island are, for the most part, easily identified, but towards the S end they become more uniform in outline.

Gunung Datu (3° 00′ N, 105° 42′ E), 451 m (1480 ft) high, situated 6 miles NW of Gunung Tujuh, is seen as a remarkably sharp peak from all directions. **Gunung Adong,** 433 m (1421 ft) high, is situated 1 mile NE of Gunung Datu; it is another remarkable peak which shows as a rounded hill from E or W, but appears sharp from N. See view B on chart 1371.

Pulau Jemaja—West side

2.11

Tanjung Dajang lies 3 miles NW of Tanjung Lelan. **Gosong Margesson,** usually marked by tide-rips, lies 5 miles W of Tanjung Dajang. The shoal is composed of sand and coral, and consists of two parts; the N has a depth of 12·8 m (42 ft) over it, and the S a depth of 9·1 m (30 ft).

Pulau Daru (2° 55′ N, 105° 41′ E) is a wooded islet, 194 m (636 ft) high, lying 3½ miles N of Tanjung Dajang and ¼ mile offshore. **Pulau Katukan,** 33 m (108 ft) high, lies close W of Pulau Daru and is separated from it by a narrow boat channel.

Pulau Sibrong, 2½ miles N of Pulau Daru, is joined to Pulau Jemaja by a reef. Pulau Sibrong has two prominent peaks the S of which is 177 m (581 ft) high, and the N 105 m (344 ft) high. **Kumbur,** an islet, lies on a reef which extends ½ mile from the NE side of Pulau Sibrong.

2.12

Pulau Tulai (2° 59′ N, 105° 41′ E), 81 m (266 ft) high, lies in the middle of the entrance to a bay between Pulau Sibrong and **Tanjung Julan (Djutan),** 2 miles NW. Pulau Tulai is fringed by a reef which extends 2 miles from its SE extremity. **Kampung Letong,** where there is a pier, alongside which boats can lie at all states of the tide, is situated on the shore of this bay 1 mile E of Pulau Tulai.

Berala, an islet, lies on the outer edge of a reef extending ½ mile from the NE shore of the bay, near Kampung Letong. A detached patch of coral, with a depth of 2·7 m (9 ft) over it, is marked by a buoy (red can; red cylinder topmark), lying 1 cable SW of it and ¾ mile SE of Pulau Tulai.

Anchorage may be obtained NE of Pulau Tulai. There is also anchorage for small craft with local knowledge off Kampung Letong Pier, the best approach to which is S of Pulau Tulai and the buoy mentioned above. In 1966, this buoy was reported to be out of position.

2.13

Pulau Ipan, 24 m (79 ft) high and covered with coconut trees, lies ¼ mile W of Tanjung Julan; it is steep-to and a detached islet lies close off its S extremity.

Courier Bank, with a depth of 11·0 m (36 ft) over it, lies 1 mile SSW of Pulau Ipan.

Between Tanjung Julan and the NW extremity of Pulau Jemaja, 3½ miles NNE, there is a bay, the S shore of which is fringed by a reef. A reef, on which there are some black above-water rocks, extends ½ mile from the NW extremity of the island.

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Islands and dangers North of Pulau Jamaja

2.14

Pulau Mangkai (3° 05′ N, 105° 36′ E) the NW of the group of islands N of Pulau Jemaja lies 6 miles NW of Tanjung Julan; it is 175 m (574 ft) high, almost of uniform elevation, and wooded. **Pulau Mangkai Light** consists of a white metal framework tower, 25 m in height situated on the W summit of the island. The light is obscured except in Impul Passage (2.17), by islands from 239°, through W to 338°. It is also obscured intermittently from W of the island within 1½ miles and from E of the island within 3¼ miles.

Caution. When approaching Pulau Mangkai from N during the NE Monsoon between November and April when, due to the variability of the rate of the S drift, a vessel may be ahead of her reckoning, it should be remembered that Pulau Mangkai Light is frequently obscured by heavy rain squalls.

Pulau Mangkai Ketjil, 61 m (200 ft) high, lies close SE of Pulau Mangkai.

The coasts of both Pulau Mangkai and Pulau Mangkai-Ketjil are fairly steep-to.

2.15

Pulau Kramut, 113 m (371 ft) high, lies 2 miles ENE of Pulau Mangkai, and is separated from it by a deep and clear passage.

Pulau Mubur, 247 m (810 ft) high, lies NE of Pulau Kramut and is separated from it by a mangrove swamp through which there is a canoe passage. **Kampung Kramut** lies at the head of a bay on the S side of Pulau Mubur; this bay is encumbered by foul ground.

Anchorage may be obtained by small vessels with local knowledge in this bay in a depth of 38 m (21 fm), sand and stones, with the SW extremity of **Pulau Datu** (3° 05′ N, 105° 40′ E) 107 m (351 ft) high lying close off the SE extremity of Pulau Mubur, the SE extremity of Pulau Mubur bearing 085°, and the SE extremity of Pulau Kramut bearing 248°. Small vessels with local knowledge can also anchor off Kampung Kramut; the channel to this village is on the W side of the bay and is marked by beacons.

2.16

Pulau Anak, 195 m (640 ft) high, lies ½ mile NE of Pulau Mubur. Two islets lie respectively, 5 cables, NW and 3½ cables N of the NW extremity of Pulau Anak; the W islet is 62 m (203 ft) high and is fringed by a reef, and the E islet is 55 m (180 ft) high.

Pulau Impul, with a prominent sharp wooded summit, 360 m (1181 ft) high, is situated SE of Pulau Anak and is separated from it by a channel 2 cables wide with a depth of 12·8 m (42 ft) in the fairway.

Impul Passage

2.17

Impul Passage is entered from W between the NW extremity of Pulau Jemaja and the SW side of Pulau Impul 1 mile NE.

Tidal streams in Impul Passage set E and W at a rate of 1½ knots at springs.

McCaulay Bank (3° 04′ N, 105° 40′ E), a small coral bank with a depth of 9·1 m (30 ft) and possibly less over it, lies in the W approach to Impul Passage 1 mile SSW of Pulau Datu. The summit of Pulau Telaga (2.35), in line with the S extremity of Pulau Impul bearing 091°, leads N of McCaulay Bank; the SE extremity of Pulau Impul in line with the outer of the black rocks extending from the NW extremity of Pulau Jemaja, bearing 069°, leads S; and Pulau Katukan (2.11) bearing 180° and open E of Pulau Ipan, leads E of McCaulay Bank.

On the S side of Impul Passage there is a bay between a point situated 6 cables ESE of the NW extremity of Pulau Jemaja and Tanjung Mingga 2¼ miles ESE.

Anchorage can be obtained in a depth of 29 m (16 fm), sand, with Tanjung Mingga, bearing 092° distant 1 mile, out of the influence of the tidal streams.

Tanjung Mingga (3° 03′ N, 105° 44′ E) is a promontory 107 m (351 ft) high, and appears from a distance as an island, being joined to Pulau Jemaja by a low sandy neck.

Bunker Bank, a coral head with a depth of 9·1 m (30 ft) over it, lies in the middle of the E approach to Impul Passage. The N side of Pulau Mangkai, bearing 280° and open S of Pulau Impul, leads S of Bunker Bank.

Pulau Jemaja—North-east side

2.18

Teluk Mampo is entered between Tanjung Mingga and Pulau Ajam, 4½ miles SE.

Pulau Gumbong, 97 m (318 ft) high, and **Pulau Hudang,** 70 m (230 ft) high, lie on a reef situated in the NW portion of Teluk Mampo 1 mile SE of Tanjung Mingga and ½ mile offshore. At the SW end of the bay there is a white sandy beach, at the E end of which lies **Gunung Silvassi,** 256 m (840 ft) high and prominent, situated 4½ miles SSE of Tanjung Mingga. **Gunung Puding,** also prominent and 213 m (699 ft) high, lies near the W end of the sandy beach, 4¼ miles SSW of Tanjung Mingga. Several villages are situated along this sandy beach, **Kampung Mampo,** surrounded by coconut trees, being at its W end.

Pulau Ajam (3° 00′ N, 105° 48′ E), the E entrance point to Teluk Mampo, has two peaks, each 152 m (499 ft) high, and is connected to Pulau Jemaja, S, by a reef.

Anchorage may be obtained in a depth of 20 m (11 fm) near the middle of Teluk Mampo, 2½ miles W of Pulau Ajam.

2.19

Tanjung Pinanang (2° 59′ N, 105° 51′ E), the NE extremity of Pulau Jemaja is low and lies 2¼ miles ESE of Pulau Ajam. **Pulau Pinanang,** 82 m (269 ft) high and planted with coconut trees, lies 1½ miles NW of Tanjung Pinanang.

Pulau Jemaja—south-east side

2.20

The SE side of Pulau Jemaja is rocky and steep. In some places there are beaches with coconut trees growing up the slopes of the hills behind them. The bays in the coast are open E and are not suitable for large vessels to enter.

Between Tanjung Pinanang and Tanjung Jebung 2 miles S, the coast is indented; an islet, 44 m (144 ft) high and covered with coconut trees, lies ¾ mile S of Tanjung Pinanang and ½ mile offshore; detached reefs extend S from the islet as far as **Tanjung Jebung** (2° 58′ N, 105° 51′ E) a low wooded point.

Westacott Bank, 4½ miles ESE of Tanjung Jebung, has a depth of 12·8 m (42 ft), sand, over it.

2.21

Teluk Jebung is entered between Tanjung Jebung and a point 3 miles SW. Some detached reefs lie in the NW part of the bay ½ mile offshore and two islets lie on the coastal reef close S of Tanjung Jebung. Good temporary **anchorage** may be obtained near the middle of Teluk Jebung, 1 mile offshore, in a depth of 16 to 18 m (52 to 59 ft), sand.

2.22

Teluk Kuala is entered between the S entrance point of Teluk Jebung and **Tanjung Linang** (2° 53′ N,

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105° 49′ E), 1½ miles SSW. A buoy (conical; black and white chequers; black conical topmark) is moored close S of a detached coral patch lying in the middle of the entrance to the bay 8 cables NNW of Tanjung Linang. Another patch of coral, marked by a buoy (black conical) moored close E of it, lies 2½ cables farther W. The bay narrows inwards from this latter buoy and is obstructed by a rocky bar with a depth of 5·5 m (18 ft) over it and by a coastal reef and some detached coral patches. Within the inlet the salient points of the reefs are marked by **beacons** (black with topmarks). **Kampung Kuala** is situated along the N side of the inner part of the bay. It consists of about 30 houses built on piles; and there is a wooden jetty. Good drinking water can be obtained.

Anchorage may be obtained in the entrance to Teluk Kuala with Tanjung Linang bearing 180° distant ½ mile and Kampung Kuala bearing 295° in a depth of 24 m (13 fm), sand. Small vessels with local knowledge can anchor farther in.

2.23

Teluk Tiru is entered between Tanjung Linang and Pulau da Jong (Dajong), 4 miles SW, and is divided into two parts, but it is so encumbered by reefs and rocks that it is of no navigational importance.

Pulau Punisan, 122 m (400 ft) high, lies in the middle of the entrance to the N part of Teluk Tiru, 1¾ miles W of Tanjung Linang. A detached reef lies ½ mile S of Pulau Punisan. **Pulau da Jong (Dajong)** (2° 51′ N, 105° 46′ E), the S entrance point of Teluk Tiru, is 35 m (115 ft) high and is joined to Pulau Jemaja by a reef.

Anchorage may be obtained off the entrance to the S part of Teluk Tiru with the N extremity of Pulau da Jong bearing 216°, distant 1 mile, in a depth of 26 m (14 fm), mud. Care should be taken to avoid a 3·7 m (12 ft) patch which lies in the middle of the entrance to the S part of Teluk Tiru, ¾ mile N of Pulau da Jong.

2.24

Between Pulau da Jong and Tanjung Lelan (2.10), 3 miles SW the coast is indented. A 3·7 m (12 ft) patch lies 1¼ miles SSW of Pulau da Jong and ½ mile offshore; a flat detached rock, 6 m (20 ft) high, lies 3 cables SE of Tanjung Lelan.

Pulau Ritan Group

2.25

Pulau Ritan (2° 37′ N, 106° 17′ E), 137 m (450 ft) high and thickly wooded, is the largest of a group of islands lying 15 miles ENE of Pulau Bawah (2.9). It is fringed by a reef extending 2 cables from its SE side. Close off its W side is a conspicuous white reef, 12 m (39 ft) high. An islet, 85 m (279 ft) high, lies close E of the N extremity of Pulau Ritan and is joined to it by a reef. **Tide-rips** and **overfalls** occur S of Pulau Ritan, which are apparently caused by the unevenness of the bottom and not by any off-lying danger.

The NE island of the group, 61 m (200 ft) high, lies 1¼ miles NE of Pulau Ritan from which it is separated by a channel 6 cables wide, which appears to be deep and clear but has not been thoroughly examined. See 2.6. A reef extends 4 cables from its N and W sides, and the W extremity of the latter is marked by a flat-topped rock 9 m (30 ft) high.

Brownrigg Rock (Brownrigg Klip) (2° 38′ N, 106° 19′ E), a coral patch with a depth of 3·7 m (12 ft) over it, lies 1 mile E of the NE island of the group. There are generally tide-rips over this rock.

Pulau Airabu Group

2.26

Pulau Airabu (2° 45′ N, 106° 13′ E) is the largest of a group of islands lying NNW of Pulau Ritan. A high wooded ridge, with several prominent peaks on it, traverses the island. The highest peak, near the NW end has an elevation of 486 m (1594 ft) showing sharp from all directions; another prominent peak, 482 m (1581 ft) high, is near the middle of the island, and is flat-topped.

Anchorage may be obtained by vessels with local knowledge in the middle of a bay on the W side of Pulau Airabu about 1½ miles SSE of the NW extremity of the island in depths of 22 to 27 m (12 to 15 fm), mud, and it was reported in 1946 that the best anchorage in bad weather is in the NE corner of the bay in a depth of about 36 m (20 fm) opposite two huts on the beach. Anchorage is also reported in a depth of 46 m (25 fm) off a small inlet close N of the N entrance point of the bay about 1 mile WSW of the summit of the island; the only known village on the island is situated here, and fresh water can be obtained in barrels or cans.

The E side of Pulau Airabu is indented. A reef, awash, lies ¼ mile E of a point situated 3¼ miles SE of the NE extremity of the island; a 5·5 m (8 ft) coral patch lies 1 mile S of the reef, awash, and 1½ miles NE of the SE extremity of the island.

Pulau Lintang, 186 m (610 ft) high, with a sharp wooded summit lies close SE of Pulau Airabu, and is separated from it by a boat channel. A group of six islets lies NE and E of Pulau Lintang; the NE islet is 55 m (180 ft) high and is situated 1½ miles from the island; the E islet is 67 m (220 ft) high and lies 6 cables S of the NE islet.

Batuputih (2° 42′ N, 106° 17′ E) consists of a group of rocks lying ¾ mile SE of Pulau Lintang. The S rock of the group is flat-topped and 14 m (46 ft) high.

Pulau Gembili, 325 m (1066 ft) high and densely wooded with a sharp prominent summit, lies ¾ mile W of Pulau Airabu.

In 1982 a depth of 9 m (29 ft) was reported 7 miles SW of Pulau Gembili.

2.27

Pulau Serak (2° 47′ N, 106° 01′ E), 123 m (404 ft) high and wooded, lies 10½ miles W of Pulau Airabu. It is fringed by a narrow reef which is steep-to close to its edge except on the N and S sides, where shallow water extends 1 cable offshore.

Chart 2244

Tokong Dahan (Dahar) (2° 49′ N, 106° 10′ E), a dangerous rock with a depth of less than 2 m (6 ft) over it, on which the sea occasionally breaks, lies 1¾ miles WNW of the N extremity of Pulau Airabu. **Tokong,** an islet 30 m (98 ft) high steep-to and covered with trees, lies 2 miles NNW of Pulau Airabu.

2.28

Pulau Genting, 96 m (315 ft) high and wooded, lies 3½ miles W of Tokong; it has two rounded peaks on its E end and its NW end is low, with a reef extending 3 cables from it. **Pulau Mentanju,** 99 m (325 ft) high and wooded, lies 1½ miles NNW of Pulau Genting. A reef extends ½ mile from its NE side; on the N edge of this reef there is a rock 2 m (6 ft) high.

2.29

Pulau Temiang, the largest of the group of islands lying NNW of Pulau Airabu, is low in the centre rising to a broad flat-topped hill at either end; the NW and higher hill is 262 m and densely wooded. There is a village on the NE side of the island. The island is surrounded by a coastal reef which extends ¼ mile from its SE extremity, where there is an islet near the edge of the reef.

Pulau Mangkudu, 30 m (98 ft) high and **Pulau**

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Telaga Tjina, 40 m (131 ft) high, are both flat-topped and similar in appearance lying ¾ mile SE and 1 mile S of Pulau Temiang, respectively; they are joined together by a reef. A detached reef, on which there is an above-water rock lies in the middle of the channel between Pulau Mangkudu and Pulau Temiang. Two small islets stand on the reef extending 4 cables S from Pulau Mangkudu; the S islet is button-shaped and 26 m (85 ft) high. A small detached drying reef lies ¼ mile SW of the 26 m (85 ft) islet.

Pulau Mangkait (2° 54′ N, 106° 08′ E), 44 m (144 ft) high, with a tongue of reef projecting ¼ mile W from it, lies 1 mile W of Pulau Telaga Tjina and ¾ mile off the S side of Pulau Temiang.

The channel between Pulau Mangkait and Pulau Mentanju is 2 miles wide and is deep and clear of dangers.

2.30

Pulau Ujung (2° 57′ N, 106° 11′ E) is the SE island of a group of four lying 1½ miles NE of Pulau Temiang from which they are separated by a deep channel clear of dangers. Pulau Ujung is inhabited and is 154 m (505 ft) high and wooded. A reef, on the outer end of which is a rock, above-water, extends 2½ cables S from the SE extremity of the island: reefs also extend the same distance from the NE and N extremities of the island.

Pulau Lubang Tamban, 160 m (525 ft) high is inhabited and lies ½ mile NW of Pulau Ujung with a narrow channel between. The E side of the island is fringed by a reef and some detached patches of reef lie close of its W side.

2.31

Pulau Telibang (2° 59′ N, 106° 08′ E), 186 m (610 ft) high and wooded near its N end, lies 1 mile NW of Pulau Lubang Tamban. **Pulau Dikar,** 107 m (351 ft) high, is situated 4 cables W of Pulau Telibang and lies on a reef which extends in patches ¾ mile N, leaving a narrow boat channel between it and Pulau Telibang; some rocks, above-water, lie near the extremity of the reef on the side of the island.

2.32

Pulau Buan (3° 00′ N, 106° 15′ E), 76 m (249 ft) high and wooded, lies 5½ miles E of Pulau Telibang. A detached reef, parts of which are above-water, lies close off its W side. Its E side is fringed by a reef and from its S extremity a reef, on which there are two islets, the N being 4 m (13 ft) high, extends 3½ cables S.

Pascoe Rock (Klip), with a depth of 5·5 m (18 ft) over it, is steep-to and lies 2 miles ENE of Pulau Buan.

2.33

Pulau Talojan, a wooded islet, 87 m (285 ft) high, lies 2½ miles NW of Pulau Buan.

Bennet Rock (Klip), with a depth of 3·7 m (12 ft) over it, lies 1 mile E of Pulau Talojan. A patch of coral, with a depth of 9·1 m (30 ft) or probably less over it, lies 1½ miles ENE of Pulau Talojan.

Barnes Bank, with a depth of 12·8 m (42 ft) over it, sand and coral, is situated 4½ miles NW of Pulau Talojan.

Charts 1371, 2244

Pulau Gentingunjut Group

2.34

Pulau Gentingunjut (Genting Unjut) (3° 08′ N, 106° 05′ E) is the W and largest of a group of islands situated 8 miles NW of Pulau Talojan. A ridge of wooded hills extends along the middle of Pulau Gentingunjut, rising to an elevation of 293 m (961 ft) near the S end. A reef, on which there is a rock, 1½ m (5 ft) high, extends 3 cables from the N end of the islands.

Pulau Linggai lies 1 mile E of the S end of Pulau Gentingunjut; a ridge of wooded hills rises to the summit 293 m (961 ft) high, near the S end of the island. **Pulau Semisak,** 137 m (449 ft) high and wooded, lies close W of the N extremity of Pulau Linggai and is connected to it by a reef. **Pulau Musuh,** 120 m (394 ft) high, lies close S of Pulau Linggai and is connected to its SW extremity by a reef.

Pulau Nawan, 82 m (269 ft) high and wooded, lies 1 mile E of Pulau Linggai and is the E island of the group.

Batu Karang Singka, awash, lies on a dangerous coral patch, 1¼ miles NNE of Pulau Nawan.

Pulau Telaga Group

2.35

Pulau Telaga (3° 03′ N, 105° 59′ E) is the largest and E island of a group lying 7 miles SW of Pulau Gentingunjut. A prominent conical peak, 530 m (1739 ft) high, is situated near the N end, and a ridge of hills extends the whole length of the island which is densely wooded. Foul ground extends 3 cables from the S end of the island, and a reef, near the extremity of which is a rocky islet, extends 6 cables from its SW corner. Pulau Telaga is inhabited, the villages being principally on the W side.

Pulau Buton, 110 m (361 ft) high at its N end, lies ½ mile W of the S end of Pulau Telaga. The island is uninhabited and is covered with coconut trees; a reef, on which there are some above-water rocks, extends ¼ mile from its S extremity, and another reef extends ¾ mile from its NW end. **Pulau Dinkor,** a white-coloured rock, lies on the last mentioned reef ½ mile offshore.

Anchorage, of an indifferent character, can be obtained by vessels with local knowledge, W of Pulau Telaga in a depth of 31 m (17 fm); it is approached either by a narrow channel between Pulau Dinkor and a detached reef 5 cables N of it or by the channel between Pulau Buton and Pulau Telaga.

Pulau Telaga Ketjil, with a sharp summit 178 m (584 ft) high, is the largest of a group of four islands lying off the NW side of Pulau Telaga. The other islands are **Pulau Lima,** 145 m (476 ft) high, **Pulau Pasu,** 76 m (249 ft) high, and **Pulau Midai.** Pulau Lima and Pulau Telaga-Ketjil are joined together by a reef, and Pulau Pasu is joined to Pulau Midai by a sandy neck which dries. A channel ¼ mile wide with a depth of 24 m (13 fm) in the fairway, lies between Pulau Midai and Pulau Telaga.

Tokong Blinau, 2 m (7 ft) high, lies 2½ miles W of Pulau Telaga-Ketjil. Foul ground extends ½ mile from this rock except on its W side.

Pulau Durai Group

2.36

Pulau Durai (3° 20′ N, 106° 03′ E) lies 11 miles NNW of Pulau Gentingunjut (2.34); it has two sharp peaks 152 m (499 ft) high. Some rocks, with a depth of less than 2 m (6 ft) over them, lie close off the NW side of the islet.

Batu Mamong, 1 m (3 ft) high, lies ½ mile SW of Pulau Durai.

Tokong Nanas (3° 20′ N, 105° 57′ E), 21 m (69 ft) high, lies 5½ miles W of Pulau Durai. A narrow coral bank, with a least depth of 11 m (36 ft) over it, and steep-to, extends 1 mile WSW from Tokong Nanas.

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KEPULAUAN ANAMBAS—NORTH-EAST GROUP

Charts 2244, 1371

2.37

The NE group of Kepulauan Anambas consists of four large islands and a number of smaller islands. See view A on chart 1371. In the channels between the islands of the group, there are many dangers, and vessels should not use them without local knowledge.

Pulau Pahit (3° 24′ N, 106° 09′ E), the NW islet of the NE group of Kepulauan Anambas, lies 6½ miles NE of Pulau Durai (2.36). It can be recognised by its comparatively isolated position and its flat wooded summit 213 m (699 ft) high.

Tokong Belajar, the N island of Kepulauan Anambas, lies 7½ miles ENE of Pulau Pahit. It is a remarkable light green bare rock like a pillar 21 m (69 ft) high.

Tokong Belajar from WNW, ½ mile
(Original dated 1986)
(Photograph by Captain R. V. James MNI)

Pulau Mubur

2.38

Pulau Mubur, one of the four large islands of the NE group, is situated 3 miles SE of Pulau Pahit. Its summit 405 m (1329 ft) high and densely wooded, is situated in the SE part of the island; viewed from N or S the summit appears as a fairly sharp peak, but from W as a high ridge.

Teluk Ajer Bandong is a narrow bay situated on the S side of Pulau Mubur. **Pulau Mantas,** 158 m (519 ft) high and wooded, lies close E of the SW extremity of Pulau Mubur and forms the W entrance point to the bay. Pulau Mantas is separated from Pulau Mubur by **Mandi Lang** which is only a few metres wide at its N end. The shores of Teluk Ajer Bandong are sparsely populated and are fringed by a reef, which, except at the head, extends a short distance offshore. Safe **anchorage** may be obtained by vessels with local knowledge 6 cables from the head of the bay in a depth of 31 m (17 fm), mud.

Pulau Rinji, wooded and 50 m (164 ft) high, with black cliffs 15 m (49 ft) high on its S side, lies 3 cables off the SW side of Pulau Mubur.

Tanjung Sapan (3° 20′ N, 106° 10′ E), the W extremity of Pulau Mubur, lies 1½ miles N of Pulau Ringi.

Pulau Pejanti, 65 m (213 ft) high, with a flat top, lies off the NW side of Pulau Mubur 1 mile N of Tanjung Sapan.

Pulau Noran (3° 24′ N, 106° 14′ E), 49 m (161 ft) high, lies close off the N extremity of Pulau Mubur.

Pulau Matak

2.39

Pulau Matak, the second largest island of the NE group, lies close E of Pulau Mubur and is separated from it by Selat Matak, a narrow strait ¼ mile wide in its narrowest part. **Bukit (Gunung) Niulwan,** the summit of Pulau Matak, is 416 m (1365 ft) high, and lies at the S end of the island; it is very prominent. The middle of the island is low.

2.40

Selat Matak is entered at the S end between Tanjung Jang (3° 16′ N, 106° 14′ E) (2.83), the W extremity of Pulau Matak, and a point 2½ miles N. The fairway through the strait is deep and clear of dangers.

A dangerous wreck lies close inside the N entrance to Selat Matak.

Tidal streams set N and S through the strait at a rate of 1 to 2 knots in the narrow part at the NE end where it opens out into Teluk Matak.

2.41

Teluk Matak is a large bay situated between the N parts of Pulau Matak and Pulau Mubur.

Pulau Tenggiling, 137 m (449 ft) high, lies 5 cables SSE of the NE extremity of Pulau Mubur and ¼ mile offshore. **Pulau Dut,** 27 m (89 ft) high and **Pulau Langor,** 21 m (69 ft) high, lie 1½ cables E and 3 cables SSE, respectively of Pulau Tenggiling. **Pulau Utjing,** 73 m (240 ft) high, is the E islet and lies 1¼ miles ESE of the N extremity of Pulau Mubur; a bank, with depths of less than 5 m (16 ft) over it, on which there are some above-water rocks, extends 3 cables W from Pulau Utjing, and **Labong,** an islet 14 m (46 ft) high, lies near the outer end of the bank.

Tanjung Pandan (3° 24′ N, 106° 17′ E), the E entrance point to Teluk Matak, is the N extremity of **Pulau Semut,** a wooded islet 216 m (709 ft) high, lying close N of Pulau Matak, from which it is separated by **Selat Onas,** a passage 1 cable wide and encumbered with rocks.

On the E side of Teluk Matak, **Pulau Baru,** 76 m (249 ft) high, lies 1¼ miles SSW of the W extremity of Pulau Semut and ¼ mile offshore. **Teluk Ulu Mangar,** which is narrow, is entered ½ mile S of Pulau Baru. Reefs extend offshore from both sides of this inlet; **Pemutus,** a village, is situated at the head of the inlet.

Matak Oil Base, under construction in 1986, is situated on the E side of Teluk Ulu Mangar. The approach is made SW of Pulau Baru. Buoys mark the sides of the bay.

There is a radio station at the oil base. A radio mast is marked by a light.

An airstrip is under construction N of Pemutus. There is a seaplane take off and landing area at the head of Teluk Ulu Mangar.

Anchorage can be obtained in any part of Teluk Matak in depths from 38 to 55 m (21 to 30 fm), mud and coral.

Directions. When entering Teluk Matak from N, pass E of Pulau Utjing.

2.42

Pulau Batu Garam lies with **Tanjung Kepinis** (3° 25′ N, 106° 21′ E), its N extremity, 4 miles ENE of Tanjung Pandan (2.41). Tanjung Kepinis slopes steeply from a hill, 149 m (489 ft) high, and is steep-to. A ridge of hills, from 183 to 235 m (600 to 771 ft) high, runs along the middle of the island for nearly its whole length. The island is densely wooded and there are several villages along the coast.

The area between the SW side of Pulau Batu Garam and the NE end of Pulau Matak is shallow and occupied by islets and drying reefs with no navigable channel between them. In this area are four islets: **Pulau Piatjuk** (3° 22′ N, 106° 19′ E) is the N of these islets and is 49 m (161 ft) high.

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Anchorage may be obtained between the E side of the N end of Pulau Matak and Pulau Piatjuk, with the N extremity of the latter bearing 070°, 3½ cables, in a depth of 26 m (14 fm), coral.

ALUR PELAYARAN THETIS

2.43

The NE group of Kepulauan Anambas is divided by **Alur Pelayaran Thetis (Thetis Vaarwater).** The three large islands of the NE group, Pulau Mubur, Pulau Matak and Pulau Siantan (2.74) together with their adjacent islands E and S, lie on the W side of Alur Pelayaran Thetis. A number of smaller islands and islets lie on the E side. There are several islets and dangers lying in the fairway. The N entrance lies between Tanjung Kepinis and Pulau Penjalin-besar (2.52), 5½ miles E. Its SW entrance is through any of the channels between the islands lying SE of Pulau Siantan. Its SE entrance is through the channels between the islands which lie between Pulau Nunsa (2.66) and Pulau Selai (2.56), 12½ miles NNE. Alur Pelayaran Thetis could probably be navigated from aloft with the sun in a favourable position, but there is little to be gained by using it, and the route outside the islands appears to be preferable.

2.44

Tidal streams in Alur Pelayaran Thetis set N and S at a rate of ¾ knot to 1¼ knots.

West side of Alur Pelayaran Thetis—north end

2.45

Pulau Snul, wooded and 91 m (299 ft) high, lies 2¼ miles S of Tanjung Kepinis (3° 25′ N, 106° 21′ E) and is separated from the E coast of Pulau Batu Garam by a channel 2 cables wide.

The S part of Pulau Batu Garam consists of a narrow peninsula 1 mile long, at the N end of which is a bay which is foul.

Tanjung Muning (3° 19′ N, 106° 19′ E) is the S extremity of Pulau Batu Garam (2.42).

Hooper Banks are two detached shoals lying on the W side of Alur Pelayaran Thetis. The N patch, composed of sand and coral with a least depth of 9·1 m (30 ft) over it at its S end lies 1¼ miles E of Tanjung Muning; the S patch, with a depth of 11·0 m (36 ft) over it lies 1½ miles SE of the same point.

2.46

Pulau Piogus, 53 m (174 ft) high, **Pulau Pidi,** 70 m (230 ft) high, **Pulau Mantjang-besar,** 72 m (236 ft) high, and **Pulau Mantjang-ketjil,** 61 m (200 ft) high, are a chain of islands extending 2 miles S from Tanjung Muning, from which Pulau Piogus, the N island, is separated by a channel ¼ mile wide with a depth of 9·1 m (30 ft) in the fairway. All these islands are cultivated with coconut trees and are inhabited.

2.47

Pulau Beliba, 93 m (305 ft) high and wooded, lies ¾ mile SW of Tanjung Muning.

Pulau Lidi (3° 17′ N, 106° 18′ E), 67 m (220 ft) high at its N end and wooded, lies 1 mile S of Pulau Beliba.

2.48

Selat Tebang is entered from S between Pulau Lidi and Pulau Mantjang-ketjil; in the approach to the S entrance a coral patch, with a depth of 12·8 m (42 ft) over it and probably less, lies 6½ cables S of Pulau Mantjang-ketjil. The NE extremity of Pulau Matak, bearing 350°, and open W of Tanjung Muning, leads W of the foul ground extending SW from Pulau Mantjang-ketjil and the 12·8 m (42 ft) coral patch.

Good **anchorage** can be obtained in Selat Tebang ¾ mile W of Pulau Mantjang-besar, in a depth of 24 m (13 fm), mud.

2.49

Pulau Air Asuk, a wooded island 143 m (469 ft) high, lies with its N extremity ¼ mile W of Pulau Lidi, to which it is connected by a reef; it is separated from Pulau Matak by a continuation of Selat Peninting (2.83).

Pulau Koran (3° 15′ N, 106° 18′ E), 82 m (269 ft) high, lies on a reef extending 1 mile SE from the E side of Pulau Air Asuk.

A reef, 2½ miles long from N to S, lies close E of Pulau Air Asuk and Pulau Koran. Several islets lie on this reef among which are **Tingo Ilot,** 27 m (89 ft) high at the N end; **Sampa,** 41 m (135 ft) high; **Mapit,** 29 m (95 ft) high; and **Tobing,** 44 m (144 ft) high and the largest, at the S end of the reef.

2.50

Thetis Reef (3° 15′ N, 106° 21′ E), composed of coral, lies 2¾ miles E of Pulau Koran.

A reef, with a sand cay which dries 1·5 m (5 ft) on the middle of its W side, lies 1¼ miles SSW of Thetis Reef.

2.51

Pulau Teluk Pau, 168 m (551 ft) high, lies close S of Pulau Air Asuk and Pulau Koran (2.49), and ½ mile E of the S extremity of Pulau Matak. Numerous detached reefs lie within the area of ¾ mile E and 1¾ miles SE from Pulau Teluk Pau; **Tingarat,** an islet 20 m (66 ft) high lies 6 cables E of Pulau Teluk Pau; **Temuang Besar,** 30 m (98 ft) high, and **Temuang Ketjil,** 21 m (69 ft) high, are two islands lying on the same reef 1¼ miles SE of Pulau Teluk Pau.

East side of Alur Pelayaran Thetis—north-end

2.52

Pulau Penjalin-besar (3° 23′ N, 106° 26′ E), with a rounded summit 131 m (430 ft) high, is the largest of a group of islands forming the NE entrance point to Alur Pelayaran Thetis, and lies 5 miles E of Pulau Batu Garam (2.42).

Pulau Setuju, 66 m (217 ft) high, the NE island of Kepulauan Anambas, lies 3 cables E from the N extremity of Pulau Penjalin-besar.

Pulau Penjalin-ketjil, 66 m (217 ft) high, lies close SE of Pulau Penjalin-besar. Two rocks, the E of which is 1 m (3 ft) high, lie on the reef close off **Tanjung Lamun,** the S extremity of the island. **Pulau Pasu,** with a conical summit 61 m (200 ft) high, lies close NE of Pulau Penjalin-ketjil, with islets, one of which is 21 m (69 ft) high, and rocks between them; a rock, 18 m (59 ft) high, lies 1 cable NW of Pulau Pasu.

2.53

Alarm Bank, lying 8½ cables ENE of Pulau Pasu (3° 23′ N, 106° 28′ E), is composed of sand and coral, with depths of 8·5 to 10·1 m (28 to 33 ft) and possibly less over it. Heavy **overfalls** and **tide-rips** mark this bank and others in the vicinity, and the area should be avoided.

Temporary **anchorage** may be obtained in the bay formed by the N side of Pulau Penjalin-ketjil and the W side of Pulau Penjalin-besar, with the SE extremity of the latter bearing 233°, distant 4 cables, in a depth of 27 m (15 fm), sand and coral.

2.54

Pulau Njamuk (Njemuk) (3° 20′ N, 106° 23′ E), 55 m (180 ft) high, lies 3 miles SW of Pulau Penjalin-

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ketjil, and is the N island of the Manda Riau group of islands which extend 4¾ miles SSE from it.

Pulau Tokong Gurun, 9 m (30 ft) high, and surrounded by shallow water for a distance of ¼ mile offshore, lies ¾ mile S of Pulau Njamuk.

Pulau Manjali, 61 m (200 ft) high and wooded, lies 4½ cables SSE of Pulau Tokong Gurun.

Pulau Manda Riau Darat (3° 18′ N, 106° 24′ E), an irregular shaped island with a prominent summit 142 m (466 ft) high, is situated 3 cables SE of Pulau Manjali. Close off the W side of Pulau Manda Riau Darat are two boulders, one 9 m (30 ft) high and the other, ½ mile N, 12 m (40 ft) high; a square rock, 4 m (12 ft) high, lies close off the S extremity of the island.

Pulau Manda Riau Laut is 102 m (335 ft) high and lies close SE of Pulau Manda Riau Darat. The area between these two islands is encumbered with reefs; **Ipil,** an islet, lies on a reef which extends 2 cables from its S end. A rock, 1 m (4 ft) high, lies close off the SW extremity of Pulau Manda Riau Laut. **Lubang Buaja** is enclosed between this reef and Ipil.

Hale Bank, with a depth of 6·4 m (21 ft) over it, coral, lies 2 miles SW of the S extremity of Pulau Manda Riau Darat.

Pulau Mangkian, 43 m (141 ft) high and cultivated with coconut trees, lies 1 mile SW of Pulau Manda Riau Laut. The channel between Pulau Mangkian and Pulau Manda Riau Laut is clear of danger.

2.55

Pulau Sagu Dampar (3° 14′ N, 106° 27′ E), 152 m (499 ft) high, is situated 2 miles SE of Pulau Manda Riau Laut. **Pulau Sama,** 69 m (226 ft) high, lies on the NE side of a reef which extends 8 cables N from Pulau Sagu Dampar; on the N extremity of this reef is an islet 12 m (40 ft) high.

Alur Pelayaran Thetis can be entered from NE by a deep and clear channel between Pulau Manda Riau Laut and Pulau Sagu Dampar.

2.56

Pulau Busung, wooded and 102 m (335 ft) high, lies ¾ mile E of the S extremity of Pulau Sagu Dampar. A reef extends 3 cables SE from the islet; on the extremity of this reef is an islet 34 m (110 ft) high, with a conspicuous boulder, 15 m (50 ft) high, on the same reef 2 cables N.

The channel between Pulau Busung and Pulau Sagu Dampar, 7 cables W, is obstructed by a rock, with a depth of less than 2 m (6 ft) over it, lying ½ mile WSW of Pulau Busung. With this exception the channel is deep and clear.

Pulau Penilan, 93 m (305 ft) high, is situated 6 cables SE of Pulau Busung.

Pulau Selai (3° 12′ N, 106° 29′ E), the E island of Kepulauan Anambas, is situtaed close SE of Pulau Penilan and is separated from it by a narrow boat channel. Its summit, 162 m (531 ft) high, shows sharp from N or S, and broad topped from other directions. The bays on the E and S sides of the island are foul and rocky; a reef extends 1½ cables from the head of the bay on the N side and a spit extends a short distance from each entrance point.

Anchorage, protected from S winds, may be obtained in the middle of the bay on the N side of Pulau Selai in a depth of 24 m (13 fm). Temporary anchorage, protected from N winds, may also be obtained between the N extremity of Pulau Selai and the SE side of Pulau Penilan but the anchorage has not been thoroughly examined.

2.57

Pulau Teluk Risan (3° 11′ N, 106° 27′ E), an irregular shaped island 174 m (571 ft) high, and wooded, is situated 2 miles WSW of Pulau Selai.

Temuruk, an islet 85 m (279 ft) high, lies close S of Pulau Teluk Risan. A sandy isthmus extends SW from Temuruk ending in a promontory 24 m (80 ft) high, 4 cables from the islet. **Nibung,** an islet 41 m (135 ft) high, lies 1½ cables SE of Temuruk.

2.58

The passage between Pulau Sagu Dampar and Pulau Teluk Risan is unsafe. **Kudok** (3° 13′ N, 106° 27′ E), an islet 26 m (85 ft) high, together with other dangers, lie in this passage 9 cables S of Pulau Sagu Dampar.

East side of Alur Pelayaran Thetis—south end

2.59

Pulau Pempang (3° 08′ N, 106° 27′ E), is the SE island of a group lying at the SE end of Alur Pelayaran Thetis 2½ miles SSE of Pulau Teluk Risan; it is 140 m (459 ft) high, wooded and inhabited.

Pulau Punjung, the largest of the group, lies NW of Pulau Pempang, and is separated from it by a channel ½ mile wide. It has two prominent peaks 6½ cables apart connected by a saddle; the E peak is 347 m (1140 ft) high.

Pulau Mentalak (3° 07′ N, 106° 24′ E), 91 m (299 ft) high at its S end, is cultivated with coconut trees in places, and lies 6 cables S of the W extremity of Pulau Punjung.

2.60

Selat Teluk (Telok) Dalam is entered from S between the SW extremity of Pulau Punjung and Pulau Pejaul (2.61), 3 cables WNW. The E shore of the strait is fringed by a reef extending a short distance from the NW side of Pulau Punjung. A rock, 2 m (6 ft) high lies close off the NE extremity of Pengending on a reef which extends 3 cables from the same point.

2.61

Pulau Pejaul, 232 m (761 ft) high, lies 8 cables NNW of Pulau Mentalak. Two islets lie on the reef which fringes the NW side of Pulau Pejaul; the NE islet is 55 m (180 ft) high, and the SW is 46 m (150 ft) high. A rock, 1 m (3 ft) high, lies 2 cables SW of the latter and 2¾ cables offshore.

Pengending (3° 09′ N, 106° 24′ E), an island 248 m (814 ft) high, is connected to Pulau Pejaul by a reef. An islet, 49 m (160 ft) high, lies close off the NW extremity of Pengending; a rock, awash, lies 1½ cables N of this islet with a rock, 1 m (4 ft) high, between them.

Anchorage, sheltered from S winds, can be obtained N of Pulau Pajaul, with the 49 m (160 ft) islet close off the NW extremity of Pengending bearing 095°, and the 35 m islet lying 6½ cables N of Pulau Pejaul bearing 034° distant 3 cables, in a depth of 24 m (13 fm), sand and coral.

2.62

Chabrol Banks, two patches ½ mile apart in a NW direction lie in the middle of the SW part of Alur Pelayaran Thetis 8 and 13 cables W of Pulau Pejaul. In 1973 a depth of 3·7 m (12 ft) was reported on the SE patch; the NW patch has a depth of 8·2 m (27 ft) over it.

2.63

Pulau Getah (3° 09′ N, 106° 22′ E) is 88 m (289 ft) high and lies 1 mile NW of Pulau Pejaul.

Pulau Lujong, lying close N of Pulau Getah, is joined to the latter by a reef. Pulau Lujong is wooded and has two well defined peaks, separated by a strip of low land; the N peak is 114 m (375 ft) high, and the S peak 101 m (330 ft) high. A detached reef lies close outside the fringing reef near the S end of the island.

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2.64

Esperance Reef, with a sandbank which dries 1·8 m (6 ft) near its S end, lies 1 mile NE of Pulau Lujong. Shallow coral patches, with depths of less than 10 m (33 ft) lie within a distance of 2 miles NE from Esperance Reef; as there may be less water than charted over these shoals, they should be avoided.

The SE extremity of Pulau Getah in line with the N extremity of Uruk Uruk (2.70) bearing 209°, so that the N entrance of Selat Tanjung Suka cannot be seen, leads between Esperance Reef and the detached reef lying 1½ miles W of Pulau Teluk Risan (2.57), and E of the shoals lying NNE of Esperance Reef.

2.65

Mangkian Pandak (3° 12′ N, 106° 21′ E), an islet 49 m (160 ft) high, lies 1¼ miles NW of Pulau Lujong; it has a sandy spit at its S end, and a reef extends 2 cables from its W side. A wooded islet 24 m (80 ft) high lies 1½ cables SE of Mangkian Pandak; a reef extends 2 cables S from the islet, and a bank, with depths of 5·5 m (18 ft) over it, extends a short distance from its E and N sides.

A wooded islet, 49 m (160 ft) high, lies in the channel between Pulau Lujong and Mangkian Pandak, ¾ mile W of the N extremity of Pulau Lujong.

West side of Alur Pelayaran Thetis—south end

2.66

Pulau Nunsa (2° 59′ N, 106° 25′ E) is the SE island of the NE group of Kepulauan Anambas. It is 59 m (195 ft) high and wooded, and fairly steep-to except at its S end.

Tidal streams in the vicinity of Pulau Nunsa are diurnal in character and attain a rate of 1 knot, the flood stream setting SW and ebb NE.

2.67

Pulau Akar, 160 m (525 ft), is the largest and E island of a group of 6 lying NNW of Pulau Nunsa; it is separated from Pulau Nunsa by a channel 1¼ miles wide which is deep and clear of dangers, but across which there are frequently tide-rips. **Pulau Tjatu,** 58 m (190 ft) high, lies 1½ cables off the SW side of Pulau Akar.

Egeria Rock (3° 02′ N, 106° 27′ E), a coral head with a depth of 3·7 m (12 ft) over it, lies 2½ miles ENE of the S extremity of Pulau Akar. There is a patch, with a depth of 6·4 m (21 ft) over it, ½ mile W of Egeria Rock.

Pulau Bate, 82 m (269 ft) high, lies 2 miles NW of Pulau Akar; reefs extend 3 cables from the S end of the island.

Pulau Teluk Bakau, 69 m (226 ft) high, lies 3 cables W of Pulau Akar. A reef extends 6 cables NNW from Pulau Teluk Bakau, and on the W edge of it is **Baba,** an islet 41 m (135 ft) high.

Pulau Semut, 73 m (239 ft) high, the W islet of the group, lies ¼ mile SW of Baba. **Batu Bini,** which dries 1 m (3 ft), and **Batu Laki,** 1 m (3 ft) high, lie on a bank 11 and 7 cables, respectively, NNW from Palau Semut. **Tide-rips** are often observed in the vicinity of these dangers.

2.68

Pulau Memperuk, the largest of a group of islands, lies with **Tanjung Belantan** (3° 03′ N, 106° 21′ E), its SE extremity, 1¼ miles NW of Pulau Semut. **Gunung Munjan,** the summit of Pulau Memperuk, 1 mile NNW of Tanjung Belantan, is 232 m (760 ft) high and prominent from all directions.

Two above-water rocks lie close off Tanjung Belantan; **Batu Rakit** consists of a number of rocks, the highest of which is 2 m (6 ft) high, extending from the middle of the E side of Pulau Memperuk for a distance of ¼ mile.

Howard Rock, with a depth of 4·0 m (14 ft) over it, lies 8 cables ESE from the N extremity of Pulau Memperuk.

Pulau Abang, 105 m (344 ft) high, lies close W of the S end of Pulau Memperuk from which it is separated by a very narrow channel. Pulau Abang is fringed by a reef except on its N side.

2.69

Walsh Bank, with a least depth of 11·0 m (36 ft), coral, lies 2¼ miles WSW from Pulau Abang.

Selat Tanjung Suka

2.70

Selat Tanjung Suka leads into Alur Pelayaran Thetis and is entered from SW between **Tenggeran** (3° 04′ N, 106° 19′ E), an island 41 m (135 ft) high, lying 1 mile NW of Pulau Abang and **Tanjung Suka** the S extremity of Pulau Bajau (2.72) 1¼ miles NNW.

Tidal streams set through Selat Tanjung Suka in a NE–SW direction at a rate of 1½ to 2 knots. With a S wind and SW-going stream, tide-rips and overfalls occur in the S part of the strait.

A chain of islands, which form the E side of Selat Tanjung Suka, extend 3¼ miles NE from Tenggeran. **Tina,** an islet, lies 3 cables NNE of Tenggeran. **Pemutus,** an island 79 m (260 ft) high, in its N part, lies with **Tanjung Bulu Kara,** its S extremity, 3 cables E of Tina.

Batu Hitam, 76 m (250 ft) high, and **Uruk Uruk** are small islands joined together by a reef, situated ½ mile ESE and ¾ mile ENE, respectively of the N extremity of Pemutus. An islet, 9 m (30 ft) high, stands on the reef which projects ¼ mile S of the W extremity of Uruk Uruk.

Pulau Pengelat, 76 m (250 ft) high, lies ¼ mile E of Uruk Uruk, from which it is separated by a narrow channel.

Anchorage can be obtained in a depth of 33 m (18 fm), sand, 1½ cables NW of Pulau Pengelat with Gunung Munjan (2.68) bearing 183°.

2.71

The W side of Selat Tanjung Suka is formed by the E side of Pulau Bajau (2.72). There are two detached reefs, one is 1 mile NE of Tanjung Suka, the S extremity of Pulau Bajau, and 2 cables offshore, and the other, which dries 0·9 m (3 ft) and generally shows clearly, ½ mile farther NE and 3 cables offshore. With the exception of these reefs the channel is clear of danger, with depths of over 36 m (20 fm) in the fairway.

Directions. When approaching Selat Tanjung Suka from SW, steer with the W side of Pulau Getah (2.63) bearing 030° and just open of the E extremity of Pulau Bajau. This leads close NW of Walsh Bank (2.69) and through the S part of the strait, SE of the reefs on the W side of the strait.

2.72

Pulau Bajau, one of the four larger islands of the NE group of Kepulauan Anambas, has two prominent peaks; the W one, **Gunung Simangi,** 239 m (784 ft) high, lies 2½ miles NNW of Tanjung Suka, and the other peak, 238 m (781 ft) high, 1 mile NE of Gunung Simangi. Some islets, one of which is 21 m (69 ft) high, lie close S of Tanjung Suka. On the SW side of Pulau Bajau between Tanjung Suka and **Tanjung Dumang,** 1¼ miles NW, there is a bay.

Anchorage may be obtained in the entrance to the bay on the SW side of Pulau Bajau in a depth of 27 m (15 fm) sand.

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2.73

Between the SE extremity of Pulau Bajau and **Tanjung Lanting** (3° 09′ N, 106° 20′ E), the NE extremity of that island, the coast, except for two rocks awash close offshore, is clear of danger.

2.74

Pulau Siantan, lies close NW of Pulau Bajau, and is the principal island of Kepulauan Anambas; it is mountainous throughout and densely wooded. **Gunung Sama** (3° 10′ N, 106° 13′ E), 565 m ((1854 ft) high, situated 4 miles SSE of Tanjung Pedas the NW extremity of the island, is prominent. Another peak, 486 m (1594 ft) high, 2½ miles NE of Gunung Sama is prominent by its forming a shoulder that falls steeply N, but the general outline of the mountain ridges in the broader part of the island is smooth and rounded, making the peaks difficult to identify.

Selat Semanggi

2.75

Selat Semanggi separates Pulau Bajau from Pulau Siantan. It is entered at its SW end through **Selat Berawa** and through Selat Taburik at its NE end.

Selat Taburik, the NE entrance to Selat Semanggi, leads into Alur Pelayaran Thetis and separates Pulau Bajau from **Pulau Masabang,** 133 m (436 ft) high, 4 cables NW; the channel between is clear of dangers, except for a reef which extends 1¼ cables from the S extremity of Pulau Masabang, and ½ mile from its NE side.

Tidal streams set through Selat Taburik in a SW and NE direction at a rate of 1 knot.

2.76

Selat Batu Belah, in which the channel is only 2 cables wide, is entered close SE of Pulau Masabang.

At the N end, Selat Batu Belah leads into Selat Peninting (2.83) between **Batu Belah,** 117 m (384 ft) high (3° 12′ N, 106° 18′ E) and **Jangkat,** 32 m (105 ft) high, which lies on the coastal reef extending ½ mile from the NE side of Pulau Siantan and N of the entrance to **Teluk Barouk.**

Tidal streams in Selat Batu Belah run somewhat strongly in a NE and SW direction.

Directions for Selat Batu Belah are given in 2.84.

2.77

Tanjung Kretang (3° 05′ N, 106° 17′ E), the S extremity of Pulau Siantan, lies 2 miles WSW of Tanjung Suka, and can be identified by a prominent hill, 64 m (210 ft) high, on its extremity. **Gunung Peta,** a sharp prominent peak 235 m (771 ft) high, lies 8 cables N of Gunung Peta with a valley between them. **Batu Tikus,** 4 m (13 ft) high, lies on a reef extending 2 cables SW from Tanjung Kretang; other rocks, one of which is black with a flat top 6 m (20 ft) high, extend 1½ cables S from the point.

Berhala, an islet 43 m (141 ft) high and covered with trees, lies ½ mile E of Tanjung Kretang; a reef extends 1¼ cables NW from Berhala.

Pulau Sui, a flat topped wooded islet, 91 m (299 ft) high lies 2 cables SW of **Tanjung Maluat,** situated 1¼ miles NW of Tanjung Kretang.

2.78

Teluk Ajer Bini is entered between Tanjung Maluat and **Tanjung Baik** (3° 06′ N, 106° 14′ E), a low point 1¾ miles W. **Teluk Luing,** on the shores of which are some houses, is entered on the W side of Teluk Ajer Bini between Tanjung Baik and a point 6 cables NE: some white rocks, 3 m (10 ft) high, lie close E of the latter point, with a detached reef 1 cable farther S. A patch, with a depth of 3·0 m (10 ft) over it, and marked by discolouration, lies in the middle of Teluk Ajer Bini ¾ mile N of Pulau Sui.

Good **anchorage** may be obtained 2 cables SE of this patch in a depth of 29 m (16 fm), mud.

2.79

Teluk Rambuton is entered between a point 1 mile NW of Tanjung Baik and **Tanjung Mandi Angin** (3° 07′ N, 106° 13′ E), 1 mile NW.

2.80

The W side of Pulau Siantan, between Tanjung Mandi Angin and **Tanjung Pedas,** the NW extremity of the island, 7 miles N, can safely be approached to a distance of ½ mile. Tanjung Pedas is a steep point and rises to a hill 186 m (610 ft) high ½ mile SSE of it.

2.81

The N side of Pulau Siantan, between Tanjung Pedas and **Tanjung Baruk,** ¾ mile SE is indented by a small bay. A rock, ½ m (1 ft) high, with a depth of 5·5 m (18 ft) close SE of it, lies 2 cables off the NE side of Tanjung Pedas.

Teluk Tarempah (Terampah Baai) is entered between Tanjung Baruk and **Tanjung Angkak,** ½ mile SW. A **beacon** (white metal; black cone topmark) marks the edge of the reef extending from the W shore, and another **beacon** (black; red cylinder topmark) marks the edge of the reef extending from the E shore.

A **light** is exhibited from a white stone tower, 3 m in height, situated on a hill near the head of the bay 1¼ miles SE of Tanjung Baruk. Another **light** is exhibited from the head of a cargo pier situated at the head of the bay. When vessels are expected, a third light, privately maintained, is occasionally exhibited in front of the NW house of Tarempah village 4½ cables NW of the white stone light-tower on the hill.

Anchorage may be obtained in Teluk Tarempah 1½ cables NNW of the head of the cargo pier in a depth of 17 m (15 fm), sand and mud. During the NE Monsoon vessels should anchor farther out and landing is then usually impracticable.

Directions. When approaching Teluk Tarempah steer for the light-tower, situated on the hill S of Tarempah village, on a S bearing, passing midway between the two entrance points.

2.82

Tarempah (3° 13′ N, 106° 13′ E) is the principal village in Kepulauan Anambas, and stands at the head of Teluk Tarempah on either side of a drying creek. The Chinese section is located on the E side of this creek and the Malayan settlement on the W side. A government official resides in Tarempah and the government offices are located near the E side of the village.

A small pier, with a depth of 1·2 m (4 ft) alongside is situated in front of the government offices; a few metres N of this pier there is a patch of coral. The cargo pier, 95 m long, alongside which vessels with a draught of up to 4·0 m can berth, lies ½ cable W of the government pier.

Facilities. Fresh bread and pork can be obtained, drinking water is obtainable at the pier.

Communications. There is regular communication by sea with Singapore.

Selat Peninting

2.83

Selat Peninting is entered from NW between **Tanjung Momang** (3° 14′ N, 106° 14′ E) and **Tanjung Jang,** a black cliffy point 1½ miles N, and separates Pulau Siantan from Pulau Matak.

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The SE end of Selat Peninting is obstructed by reefs and islets. On the NE side the coast is indented and reefs and foul ground extend 1 mile from it, leaving a navigable channel, only 2 cables wide between this foul ground and the reefs extending from the SW side.

Selat Peninting turns N between Pulau Teluk Pau (2.51) and the SE side of Pulau Matak, ½ mile W and runs along the SE side of the latter. **Teluk Niulwan,** 1 mile N of the SE extremity of Pulau Matak is shallow and the entrance is obstructed by a reef: it divides the S part of Pulau Matak into two high and wooded peninsulas. There are several villages along the shore of Teluk Niulwan.

The N entrance of Selat Peninting, between Pulau Matak and Pulau Lidi (3° 17′ N, 106° 18′ E) (2.47) 4 cables E, leads into Selat Tebang but it is obstructed by reefs.

2.84

Directions. In case of necessity, the following directions may be useful for proceeding through Selat Peninting and Selat Batu Belah (2.76).

When entering Selat Peninting from W, keep in mid channel until ½ mile N of **Tanjung Kangor** (3° 13′ N, 106° 15′ E). When Tanjung Jang is in line with the black cliffy point 1½ miles SE of it, bearing 318°, alter course to maintain this alignment, astern, until the N extremity of Batu Belah is in line with the N extremity of Pulau Lujong (2.63), bearing 101°. Proceed along this alignment until the W extremities of Batu Belah and Pulau Masabang are in line bearing 159°, thence keep on this alignment until abreast of the detached reef which lies E of Jangkat. Course should then be altered to clear the reef extending from the W side of Batu Belah. Thence keep in the fairway of the channel between the reefs, and when S of Pulau Masabang, either steer NE into Selat Taburik or SW into Selat Semanggi.

KEPULAUAN ANAMBAS TO HONG KONG

OILFIELD ON EAST SIDE OF MAIN ROUTE

Chart 1311

2.84a

Udang Oilfield (4° 02′ N, 106° 28′ E) is situated 40 miles NNE of Kepulauan Anambas and 20 miles SE of the main route between Singapore and Hong Kong (2.1). The oilfield consists of Udang A and Udang B production platforms and a storage tanker moored 1 mile ESE of Udang A. A pipeline connects the platforms to the storage tanker.

Areas within 1¾ miles of the storage tanker and 1 mile of each platform are restricted and anchoring within them is prohibited.

The recommended anchorage is 3½ miles WNW of Udang A.

Tugs are available and there is a radio station.

BANKS ON WEST SIDE OF MAIN ROUTE

Chart 2660a

2.85

Charlotte Bank (7° 08′ N, 107° 35′ E), with a least depth of 8·5 m (28 ft) over it, lies 235 miles NNE of Kepulauan Anambas and 27 miles NW of the main route between Singapore and Hong Kong (2.1). In 1964, a shoal with depths of 22 to 35 m (12 to 19 fm) over it, was reported to lie 6 miles WNW of Charlotte Bank.

Scawfell (7° 18′ N, 106° 51′ E), 46 miles WNW of Charlotte Bank, has a least depth of 9·1 m (30 ft) over it and is composed of coral. When examined by HMS *Waterwitch* in 1908, Scawfell was not marked by discoloured water nor by overfalls.

Callou Bank (9° 18′ N, 107° 35′ E), with a least depth of 9·1 m (30 ft) over it, lies 65 miles NE of Con Dao (5.87). **Wallace Bank** with a least depth of 8·8 m (29 ft) over it, lies 11 miles NNE of Callou Bank.

Royal Bishop Banks, composed of coral, lie between 93 and 126 miles NE of Con Dao and 58 miles from the coast of Vietnam. The least depths over these banks is 7·9 m (26 ft).

Astrolabe Banks (10° 07′ N, 107° 47′ E) (chart 1261), which lie 30 miles NNW of the shallowest part of Royal Bishop Banks, consist of three detached coral patches. The W patch has a depth of 4·6 m (15 ft) over it, and the E patch 10½ miles E, a depth of 6·7 m (22 ft); a shoal with a depth of 6·7 m (22 ft) over it lies midway between the E and W patches.

ÎLES CATWICK, DAO PHU QUI AND BANKS IN THE VICINITY

Charts 3986, 3987

2.86

Banks in vicinity of Îles Catwick and Dao Phu Qui. At various times between 1824 and 1964, banks have been reported to lie in the vicinity of the main route to Hong Kong in the area near Îles Catwick (2.87) and Dao Phu Qui (2.90). It is possible that volcanic eruptions have produced these banks, but successive searches by HM Surveying vessels between 1909 and 1937 have indicated that all these banks have subsided although the bottom remains uneven. Light patches of water, caused by currents, were seen on several occasions by HM Surveying Ship *Herald* in April 1937 in position 10° 02′ N, 109° 51′ E.

Îles Catwick

2.87

Îles Catwick (10° 00′ N, 109° 00′ E) comprise three islands 70 miles off the coast of Vietnam, and mark an area of irregular depths in which signs of volcanic activity have been noted. Great caution is necessary when navigating in this area. In 1923, two volcanic islands, which have since been levelled by the action of the sea and no longer consitute a danger to navigation, were formed 10 miles N of Îles Catwick.

Poulo Sepate (9° 59′ N, 109° 05′ E) 111 m (364 ft) high and barren, is the highest and E island of the group. When viewed from some directions, Poulo Sepate resembles a shoe; from others, it appears as a square column, and from E as a pyramid.

With the exception of a rock, awash, lying close E of its S end, Poulo Sepate is steep-to. In very favourable conditions, landing may be effected on the rocks at the S end, otherwise the island is inaccessible.

Anchorage may be obtained E of the island in a depth of 29 m (16 fm), coral, but the holding ground is not good.

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A depth of 27·4 m (15 fm) lies 5 miles SSE of Poulo Sepate in an area in which submarine volcanoes have been reported. Strong **tide-rips** may be met in this vicinity.

Julia Shoal, with a depth of 5·8 m (19 ft) over it, is composed of coral and lies 3½ miles SE of Poulo Sepate.

In 1979 a depth of 29 m (16 fm) was reported 26½ miles SSW of Poulo Sepate and in 1982 a depth of 12·8 m (7 fm) was reported 15 miles S of the same island.

In 1978 a depth of 20 m (11 fm) (chart 2660a) was reported 33 miles SSE of Poulo Sepate.

Petite Catwick, a pyramidal rock 16 m (52 ft) high and steep-to, lies 2 miles NW of Poulo Sepate.

Anchorage may be obtained 2 cables NE of Petite Catwick in a depth of 20 m (11 fm), but the rock gives no shelter.

Grande Catwick (10° 03′ N, 108° 54′ E), a round barren rock, 60 m (196 ft) high, lies 9 miles WNW of Petite Catwick; a reef extends 1½ cables SE from it. **Anchorage** is possible 1½ cables N of Grande Catwick in a depth of 40 m (22 fm), with good holding ground, but it is unprotected. The rock which can be climbed, is frequented by sea-birds.

La Paix, a rock which dries 1·8 m (6 ft) lies 4½ miles E of Grande Catwick. This rock is small and steep-to; except in calm weather, the sea always breaks on it.

2.88

Currents in the vicinity of Îles Catwick are at times strong, and are quite irregular close in around the islands. The NE Monsoon causes a considerable current.

Tidal streams. The flood stream sets to the SW and the ebb to the NE.

2.89

Roche Yusun (Yusan Shoal) is a coral patch, with a depth of 7·0 m (23 ft) over it, lying 18 miles NNW of Poulo Sepate. In quiet weather Roche Yusun is not easily seen, but in the strength of the monsoon the sea has been observed to break on it.

Chart 3987

Dao Phu Qui

2.90

Dao Phu Qui (Poulo Cecir de Mer) (10° 32′ N, 108° 56′ E) lies 33 miles NNW of Poulo Sepate and 40 miles off the coast of Vietnam. The island has two hills near its N end. The SW hill is 106 m (349 ft) high and has a rounded top; the NE hill, 89 m (292 ft) high, is conical and several masses of rock near its summit give it a jagged appearance. The island belongs to Vietnam and is well cultivated, but no supplies can be obtained.

Rocher Elevé

Dao Phu Qui bearing 240° 10 miles
(Original dated 1933)

Some rocks, one of which is 20 m (67 ft) high, lie on the outer edge of the coastal reef which extends ½ mile NE from the island. On the E side of the island there is a sandy bay in which there is a detached reef which dries 0·9 m (3 ft), and a bank with depths of less than 5 m (16 ft) over it extends 1 mile offshore.

Îlot du Sud, 45 m (148 ft) high, lies near the centre of a reef which extends 1½ miles SSE from Dao Phu Qui, and a black rock, 17 m (56 ft) high, lies close S of Îlot du Sud. A bank with depths of less than 5 m (16 ft) over it, extends 3 cables from the SW side of Dao Phu Qui.

Anchorages. Anchorage during the NE Monsoon may be obtained off the sandy shore forming the SW and W sides of the island in depths of 24 m to 29 m (13 to 16 fm), sand and shells, but the best position is just S of the SW extremity, ½ mile off the coastal reef in depths of 18 to 26 m (59 ft to 14 fm). The coastal reef surrounding the island is steep-to. During the SW Monsoon, anchorage may be obtained off the NE end of the island in depths from 25 to 27 m (14 to 15 fm), but the bottom is rocky and holding ground poor. This anchorage is not recommended, but there is, however, good anchorage with the 20 m (67 ft) rock off the NE end of the island, bearing 170° distant 11 cables.

Mined area. An area dangerous due to mines lies S of Dao Phu Qui. See 1.5 and Appendix I.

2.91

Rocher Elevé (10° 37′ N, 108° 52′ E), 18 m (59 ft) high and frequented by sea birds, lies on a bank with depths of less than 20 m (11 fm) over it, 5 miles NW of Dao Phu Qui; close N of Rocher Elevé is another rock, above-water, with a rock, awash, beyond it.

Banc Hollandais (Holland Bank) (10° 39′ N, 108° 42′ E) composed of coral, lies 11 miles WNW of Rocher Elevé. The least depth found on this bank is 3·7 m (12 ft) and there are depths of 4·6 and 5·5 m (15 and 18 ft) on its SE side, which is very steep-to.

Depths in the channel between Rocher Elevé and Banc Hollandais are very irregular. Banc Hollandais should be given a wide berth as in its vicinity the depths are so irregular that it cannot be approached safely by sounding.

Banc de la Marne (Marne Bank) (10° 25′ N, 108° 35′ E) with a least known depth of 15·8 m (52 ft) over it, lies 20 miles WSW of Dao Phu Qui; this bank has not been examined.

PARACEL ISLANDS

Charts 2661a, 94

2.92

The **Paracel Islands,** known to the Chinese as **Hsi-sha Ch'un-tao,** are an extensive group of low coral islands and reefs lying within about 60 miles of position 16° 30′ N, 112° 00′ E, and on the W side of the main route between Singapore and Hong Kong. They consist of two main groups, Amphitrite Group and Crescent Group, and several islets and reefs. The sovereignty of Paracel Islands is disputed between China and Vietnam.

In fine weather there is no difficulty in navigating between the reefs with a good look out aloft. The trees on the islands and the sea breaking over the heads of some of the above-water rocks on the reefs give warning of approach to the dangers, but in 1936 Neptuna Banks (2.94) were reported to be extremely difficult to see. In misty or bad weather Paracel Islands should be avoided unless seeking an anchorage. When approaching Paracel Islands from SW, a wide berth to W is recommended owing to the difficulty of sighting Triton Island. Money Island (2.99) should be approached on a course of not less than 070°.

The current is generally influenced by the wind in both monsoons, but with a light wind between the monsoons, it continually changes its direction among the reefs, and sometimes attains a rate of 2 knots.

Paracel Islands are often visited by junks. A few edible plants and wild fruit may be found.

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Chart 94

South group of reefs

2.93

Triton Island (15° 47′ N, 111° 12′ E), known to the Chinese as **Chung-chien Tao,** is the SW island of Paracel Islands and is a sand cay, 3 m (10 ft) high. It lies on a coral reef which extends 1 mile NE from the island and ½ mile in other directions. The reef has a depth of not more than 1·8 m (6 ft) over it and is steep-to. Triton Island is a breeding place for sea birds. In 1986 a square white building near the centre of the island was reported to be conspicuous.

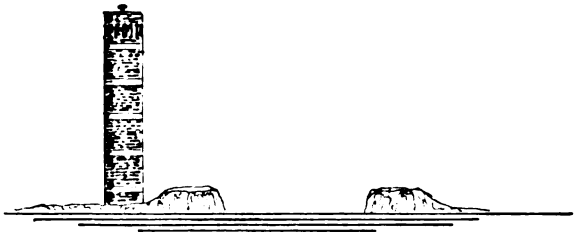
Passu Keah, known to the Chinese as **P'an-Shih Hsu,** is a sand cay 35 miles ENE of Triton Island. It is situated near the W end of a coral reef, which extends 4 miles E from the cay. The edge of the reef is steep-to.

Discovery Reef, known to the Chinese as **Kuang-hua Chiao,** is 15 miles in length in an E–W direction and lies 8 miles N of Passu Keah. The outer edge of the reef is steep-to with several above-water rocks on it. There is a depth of barely 3·7 m (12 ft) on any part of the reef; there are two openings in the reef leading through to the lagoon, which can be used by boats, one on the S side and a narrower one on the N side. Discovery Reef is marked by heavy **over falls**.

Vuladdore Reef (16° 21′ N, 112° 00′ E), known to the Chinese as **Yu-cho Chiao,** lies 10 miles NE of Discovery Reef. It is 7 miles long and has a few above-water rocks on it, over which the sea breaks heavily at times.

2.94

Bombay Reef (16° 02′ N, 112° 30′ E), known to the Chinese as **P'eng-P'o Chiao,** lies 39 miles E of Passu Keah, and is the SE reef of the group. This reef, which encloses a lagoon, has some rocks awash and four above-water rocks on it; it is steep-to and the sea breaks over it. There is an opening in the reef near its SW extremity where it is possible for boats to enter the shallow rock-strewn lagoon within. The channel has been dredged and the material deposited on each side forming banks about 3 m high. During the NE Monsoon the best time to enter is three hours after LW when the reef begins to cover and the current is eased.



Bombay Reef W end from WSW

(Original dated 1980)

(Drawing by E J Veenemans, M V Nedlloyd)

A **light** is exhibited from a round tower, 22 m in height, constructed of red brick with concrete bands, on the N side of the channel entrance. The tower is conspicuous on radar up to about 17 miles.

Some wreckage, the remains of boilers, are visible on the N edge of Bombay Reef and there is a conspicuous stranded wreck situated on the NE extremity of the reef which gives a good radar response.

The **current,** 3 miles SE of Bombay Reef, was reported in 1951 to set 040° at a rate of 1½ to 2 knots.

Bremen Bank lies 15 miles N of Bombay Reef and is 14½ miles long from ENE to WSW with a least depth of 12·8 m (42 ft) situated near its SW end. In 1954 the bank was reported to be extending to W.

Jehangire Bank, the depths over which are very irregular, consists of three detached patches lying 4 miles ENE of Bremen Bank. A least known depth of 12·8 m (42 ft) exists on the SW patch.

Neptuna Banks, consisting of two coral patches, are situated 11 miles N of Bremen Bank. The NE patch with a least depth of 12 m (40 ft) over it, lies 6½ miles WSW of Pyramid Rock (16° 35′ N, 112° 39′ E) (2.95); the SW patch lies 4 miles farther SW and has a least depth of 16·5 m (54 ft). Both these patches are extremely difficult to see and there are depths of over 180 m (100 fm) close NW to them. A depth of 20 m (11 fm) lies 2 miles SSW of the 16·5 m depth.

2.95

Pyramid Rock (16° 35′ N, 112° 39′ E), known to the Chinese as **Kao-chien Shih,** is situated 7 miles SW of Lincoln Island; it is 5 m (16 ft) high and cone-shaped. At a distance it has a junk-like appearance.

2.96

Lincoln Island (16° 40′ N, 112° 44′ E), known to the Chinese as **Ho-wu Tao,** is the E island of Paracel Islands. Lincoln Island is 5 m (16 ft) high, the NE side being cliffy. The island is covered with brushwood and surrounded by a coral reef, which dries, extending a short distance from its SW side and 3 cables from its NE side. It has been reported that fresh water can be found on the island.

A narrow coral bank, studded with rocks, extends 14 miles S then 5 miles WSW from Lincoln Island; this bank has not been examined and should not be crossed.

A conspicuous wreck, forming a good radar target, lies on the SE side of a 3·7 m (12 ft) detached patch 1½ miles SSE of Lincoln Island.

Good **anchorage** can be obtained at all times of the year under the lee of Lincoln Island ½ mile offshore in a depth of 18 m (60 ft), coral.

2.97

Dido Bank (16° 49′ N, 112° 53′ E), known to the Chinese as **Hsi-tu T'an,** lies 12 miles NE of Lincoln Island. It has a depth of 24 m (13 fm) over it, sand, and is steep-to.

CRESCENT GROUP

2.98

Crescent Group, known to the Chinese as **Yung-lo Chun-tao** consists of several low sandy islands and numerous reefs in the form of a crescent and are situated 43 miles NE of Triton Island (2.93). The principal islands are covered with thick vegetation and may be seen from a distance of 10 miles.

2.99

Money Island (16° 27′ N, 111° 30′ E), known to the Chinese as **Chin-wan Tao,** lies at the W end of a reef which is separated from the SW horn of the Crescent by a channel 1½ miles wide. There is an isolated depth of 1·8 m (6 ft) near the centre of this channel. Money Island is 6 m (20 ft) high and covered with brushwood. Several cays lie E of Money Island on the same reef. In 1978 structures resembling oil drilling rigs stood on the N and S extremities of Money Island.

Anchorage may be obtained close to the reef N of Money Island, where the tidal streams are negligible.

2.100

Antelope Reef, known to the Chinese as **Lin-yang**

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Chiao, partly dries and forms the SW horn of the crescent; a cay is situated on the SE extremity of the reef.

Robert Island, known to the Chinese as **Lo-pai-t'o Tao,** 8 m (26 ft) high, lies ½ mile N of Antelope Reef. It is fringed by a reef and covered with vegetation. In 1950, one building was on the island and there was a pier on its SE side. A bank, with depths of 4 m (13 ft) and less over it, extends ¾ mile N of Robert Island. Well water may be obtained on the island.

2.101

Pattle Island (16° 32′ N, 111° 36′ E), known to the Chinese as **Shan-hu Tao,** lies 2 miles NE of Robert Island; it is 9 m (30 ft) high and covered with brushwood and mangroves. There are two large rectangular buildings and several smaller buildings in the middle of the island. A skeleton tower with a flagstaff stands on the W end of the W large building, and a prominent pylon stands midway between this building and the SW extremity of the island. A small shrine, situated on the SW extremity of the island is prominent.

The reef surrounding Pattle Island extends 1¾ miles NE and there is an above-water rock on the reef 2 cables N of the island. On either side of the reef there is a clear channel. Landing may be effected from boats at low water in a bay on the S side of the island.

A rock jetty, 180 m long and terminating in a small T-head with depths of 1·5 to 2·7 m alongside, extends from the E side of Pattle Island. Phosphate is loaded into barges by a 3-ton mobile crane from the jetty. A red building is situated at the root of the jetty.

Anchorage may be obtained ¼ mile SE of the jetty in a depth of 27 m (15 fm), coral, but the holding ground is poor and anchoring is not recommended.

Fresh water is obtainable from a well on the island.

The climate at Pattle Island is healthy except after rain when a noxious gas rises from the deposits of guano.

A meteorological station is located on Pattle Island.

2.102

Observation Bank, known to the Chinese as **Sen-p'ing-t'an,** with a brushwood covered sand cay on it, lies at the N end of Crescent group 6 miles NE of Pattle Island. The reef surrounding the cay extends 1½ miles SE from it.

Several detached reefs lie W and SW of Observation Bank; these extend in a general WSW direction for 3¼ miles, leaving a deep channel between their SW edge and the reef lying NE of Pattle Island.

2.103

Drummond Island (16° 28′ N, 111° 45′ E), known to the Chinese as **Chin-ch'ing Tao,** is 3 m (10 ft) high and lies 7 miles SSE of Observation Bank. The area between is occupied by foul ground on which there are several sand cays. The reef surrounding Drummond Island extends a short distance from its S side and 4 miles NE, whence it curves NW for another 4 miles.

Anchorage may be obtained close off the reef on the W side of Drummond Island.

2.104

Duncan Islands, two in number and known to the Chinese as **Tao-ch'ien Ch'un-tao,** form the SE horn of the Crescent, and lie 1½ miles SW of Drummond Island, from which they are separated by a navigable channel. The islands consist of coral and are connected by a sandspit; they are covered with shrubs and are surrounded by a reef which extend ½ mile S from the islands.

The reef is steep-to with the exception of a rock, with a depth of less than 2 m (6 ft) over it, which lies close SE of the E island. Several small buildings and a flagstaff stand on the larger island, and on its S side are two prominent palm trees, near which is a well.

The best **anchorage** in the Crescent Group is found near the reef on the N side of Duncan Islands in depths of 18 to 27 m (10 to 15 fm), where there are some broad patches of sandy bottom.

Tidal streams, with a rate of 1½ knots, have been observed in the SE entrance to the lagoon between Drummond Island and Duncan Islands, but within the anchorage just described the stream is not appreciable.

2.105

The channel between Duncan Islands and Antelope Reef (2.100) is 5 miles wide, and for the most part deep, but a 3·7 m (12 ft) shoal lies 3½ miles W of Duncan Island.

Within the Crescent, W of the foul ground between Observation Bank and Drummond Island, the general depths in the lagoon vary from 24 to 48 m (13 to 26 fm), but there are several detached shoal patches, over which there are depths from 7 to 13 m (23 to 43 ft). Good shelter may be obtained during the NE Monsoon but a swell may be expected in the middle of the lagoon during the strength of the SW Monsoon.

AMPHITRITE GROUP

2.106

Amphitrite Group, known to the Chinese as **Hsuan-te Ch'un-tao,** the NE group of Paracel Islands, consists of two portions separated from one another by a deep channel 3½ miles wide. The N portion of the group consists of two reefs separated from one another by Zappe Pass (2.111) which is ½ mile wide. On these two reefs are several islands and sand cays. The S portion of the group consists of Woody Island and Rocky Islet which stand on a reef.

2.107

Woody Island (16° 50′ N, 112° 20′ E), known to the Chinese as **Yung-hsing Tao,** is the largest island of Amphitrite Group and lies 24 miles WNW of Lincoln Island (2.96); it is surrounded by a white sandy beach and is covered with trees. There is a square tower, two temples, a village and several large buildings on the island.

A light is exhibited from a white round stone tower with black bands on Woody Island.

An observation tower is situated on the S side of the island, 6 cables SSE of the observation spot, see plan on chart 94. Four 'whip' type radio masts are located in the centre of the island 3 cables N of the observation tower.

Landing can be effected on the lee side of the island.

Anchorage may be obtained during S winds ½ mile from the reef fringing the N side of Woody Island in a depth of 24 m (13 fm), sand. In NE winds good anchorage may be obtained 7 cables SW of the observation spot in a depth of 33 to 37 m (18 to 20 fm), sand.

Two mooring buoys lie close N of Woody Island.

There are depths of 14·6 m (8 fm) 5 miles SSE of the island.

Guano is shipped from the island.

2.108

Rocky Islet, known to the Chinese as **Shih Tao,** is 14 m (46 ft) high and lies near the outer edge of a reef extending ¾ mile NE from Woody Island; a bank, with

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depths of less than 20 m (11 fm) over it, extends 4 cables N of the reef. There are a few houses on the S end of Rocky Islet.

An overhead cable connects Rocky Islet with Woody Island.

Two large mooring buoys, Nos I and II, painted red with the number inscribed in white on each end, lie outside the 20 m (11 fm) line 8 cables NW of Rocky Islet. There is a concrete pier on the N side of Woody Island.

2.109

Iltis Bank, with depths from 10·6 m to 14·8 m (35 to 49 ft) over it, lies 7 miles SW of Woody Island.

2.110

Tree Island (16° 59′ N, 112° 16′ E), known to the Chinese as **Chao-shu Tao,** is in the N portion of Amphitrite Group 32 miles NW of Lincoln Island. It is covered with mangrove bushes and surrounded by a white sandy beach. The reef on which Tree Island lies extends 1½ miles E fromthe island and 4½ miles W; near the W end of the reef is **West Sand,** a sandy cay, known to the Chinese as **Hsi-sha Chou.**

Anchorages. Anchorage may be obtained 1 mile S of Tree Island and also 3 miles NW of it. Junks visiting these islands during the NE Monsoon period from October to March, anchor close off the SW side of Tree Island, in a depth of 4 m (13 ft). The channel leading to this anchorage is on the S side of the reef and is 2 cables wide, with a depth of 1 to 2 m (3 to 7 ft) in the fairway. Landing on Tree Island may be effected in the openings on the SW side of the reef between the islands and cays.

2.111

Zappe Pass, close E of the reef on which Tree Island stands, has a least known depth of 4·6 m (15 ft) in mid-channel, and is only suitable for small craft. With a fresh breeze breakers extend across the pass, and there is usually a strong current running through it.

2.112

North Island (16° 58′ N, 112° 18′ E), known to the Chinese as **Pei Tao,** lies 2 miles ESE of Tree Island, and is separated from it by Zappe Pass. A reef extends ½ mile NW from North Island and 4 miles SE. **Middle Island** and **South Island,** known to the Chinese as **Chung Tao** and **Nan Tao** respectively, lie on the SE part of the reef, ½ mile and 1 mile from North Island. All three islands are covered with mangrove bushes and there are several small buildings on North Island. Near the SE end of the reef are three sand cays, covered with vegetation; **South Sand** is on the SE cay.

Anchorage may be obtained SSW of North and Middle Islands in depths from 20 to 29 m (11 to 16 fm), sand.

2.113

North Reef, known to the Chinese as **Pei Chiao,** is situated with its E end in 17° 06′ N, 111° 33′ E, and lies 42 miles WNW of Tree Island; it extends 6½ miles W and encloses a lagoon. The reef is steep-to in places and the edge of it, all round, has rocks just above water. The noise of the breakers on the reef may be heard for a considerable distance at times. On the SW side of the reef, there is a boat passage leading into the lagoon.

In 1965, two cylindrical boilers, 3 m (10 ft) in height, were lying near the SW end of the reef, E of the boat passage; in the same year three boilers, one of which was below-water, lay within 2 cables of each other on the NE side of the reef.

A **light** is exhibited from a white round metal framework structure with red band, 22·8 m in height, on the SW side of North Reef: a **beacon** stands on the NE side of the reef.

Chart 2661a

Outlying shoal

2.114

St Esprit Shoal (19° 33′ N, 113° 02′ E) lies near the edge of the 200 m (109 fm) depth contour, 113 miles E of the E point of Hainan Dao (9.85). The shoal, on which the least depth is 10·8 m (35 ft), is situated 35 miles W of the main route to Hong Kong. Strong **tide-rips** have been observed in the vicinity of the shoal but on examination deep water was found to exist. The current was observed to set generally with the wind.

BANKS ON EAST SIDE OF MAIN ROUTE

Chart 1263

2.115

Caution. Vessels bound from Singapore to Hong Kong should not attempt to pass between the banks described below, and the numerous shoals which exist over a very large area between the parallels of 7° 33′ N and 12° 00′ N and the meridians of 112° 50′ E and 117° 44′ E.

Currents. HMS *Rifleman* when surveying in the vicinity during the years from 1864 to 1868, anchored on most of the banks and reefs which exist between the main route from Singapore to Hong Kong and the dangerous area quoted above, and observed that, for sixteen hours out of the twenty-four, the current invariably set to windward, generally at the greatest rate when the monsoon was strongest.

Chart 2660a

In 1973, a 13 m (42 ft) patch was reported in 4° 26′ N, 106° 33′·5 E, about 100 miles NE of Pulau Mangkai Light (2.14).

A depth of 33 m (18 fm) lies 80 miles S of Charlotte Bank in position 5° 47′ N, 107° 30′ E.

2.116

Vanguard Bank (7° 28′ N, 109° 37′ E), with a least depth of 16·5 m (54 ft) over it, lies 60 miles SE of the main route between Singapore and Hong Kong. A 20 m (11 fm) patch lies near the E extremity of the bank; this patch was reported in 1960 to show muddy discolouration.

A depth of 13·7 m (7½ fm) lies 25 miles W of the SW end of Vanguard Bank.

Prince Consort Bank (7° 53′ N, 110° 00′ E), composed of sand and coral, lies 12 miles NE of Vanguard Bank, and has a least depth of 18·3 m (60 ft) near its NW edge. Depths of 22 and 24 m (12 and 13 fm), coral, exist on the W edge of the bank, S of the shallowest part.

In 1982 it was reported that both Vanguard and Prince Consort Banks lay 4 miles NW of their charted positions.

Grainger Bank, with depths of 11·0 to 14·6 m (36 to 48 ft), coral, over it, lies 35 miles ENE of the E end of Vanguard Bank. The coral bottom of Grainger Bank is visible over nearly the whole of it.

Prince of Wales Bank, with a least depth of 7·3 m (24 ft) over it on its W side, lies 12 miles N of Grainger Bank: it is of coral formation and the depths over it are very irregular.

Alexandra Bank, 2 miles SE of Prince of Wales Bank, has a depth of 5·5 m (18 ft) over it on its E side; the coral bottom of this bank is distinctly visible.

2.117

Dumping ground for explosives lies within a radius

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of 12½ miles centred 65 miles NNE of Prince of Wales Bank (8° 08′ N, 110° 30′ E).

Chart 94

Macclesfield Bank

2.118

Macclesfield Bank is situated E of the main route from Singapore to Hong Kong, its SW extremity lying 66 miles ESE of Bombay Reef (2.94). It was discovered by the English ship *Macclesfield* in 1701 and was surveyed in 1892–3. The bank is a below-water atoll with many patches over which there are depths of less than 20 m (11 fm) on its edge.

The shallowest part of the edge is at the NE end of **Pigmy Shoal** (16° 14′ N, 114° 48′ E) at the NE end of Macclesfield Bank, where there is a depth of 11·9 m (39 ft).

Detached depths of 9 m (5 fm) have been reported 11 miles ESE and 19 miles ENE of the E extremity of Pigmy Shoal.

Egeria Bank lies 13 miles SE of Pigmy Shoal, with **Howard Shoal** and **Learmonth Shoal** 13 and 24 miles, respectively, SW of Egeria Bank. **Plover Shoal** and **Addington Patch** are 15 and 19 miles farther WSW.

Smith Shoal lies at the S end of Macclesfield Bank, with **Bassett Shoal, Balfour Shoal, Parry Shoal,** and **Cawston Shoal,** respectively, 3, 12, 21, and 26 miles farther W.

Penguin Bank (15° 38′ N, 113° 44′ E) lies at the SW end of Macclesfield Bank 73 miles SW of Pigmy Shoal, and has a least depth of 16·5 m (54 ft) over it at its NE end.

Tancred Shoal, Combe Shoal, Cathay Shoal, Siamese Shoal, Bankok Shoal, Magpie Shoal, Carpenter Shoal and **Oliver Shoal** lie in that order, NE from Penguin Bank on the NW edge of Macclesfield Bank.

In 1987 an E-going current of ½ to 1 knot was reported over Macclesfield Bank.

2.119

Within the perimeter shoals are several detached shoals, the shallowest of which is **Walker Shoal** with a depth of 9·1 m (30 ft) over it, which lies near the middle of Macclesfield Bank.

The W portion of Macclesfield Bank has only been partially surveyed.

Caution. Macclesfield Bank can generally be seen from aloft. In heavy weather the sea on its edge is high and confused. Vessels are recommended to pass either E or W of the bank as uncharted dangers may exist on it.

Chart 2661a

Helen Shoal

2.120

Helen Shoal (19° 12′ N, 113° 53′ E), situated midway between Macclesfield Bank and Hong Kong, 15 miles E of the main route from Singapore, has a least depth of 10·2 m (33 ft) over it, with depths of over 200 m (109 fm) close round it. The sea breaks over it in bad weather. Strong tide-rips have been observed in the vicinity of Helen Shoal, but on examination, deep water was found to exist there. The current was found usually to set with the wind. HM Surveying Ship *Dampier* anchored on this shoal in 1962.

Chart 2661b

2.121

Breakers were reported in 1949 in 18° 10′ N, 117° 15′ E, 200 miles ESE of Helen Shoal.

PRATAS REEF AND ISLAND

Charts 362, 2661b

Pratas Reef

2.122

Pratas Reef is a circular coral reef, 11 miles across, enclosing a lagoon. The S, E and N sides of its circumference, as well as a portion around Pratas Island, dry at low water and are steep-to along the greater part of their outer edges. **Northwest Horn** and **Southwest Horn** are the extremities of the main drying part of the reef. **Northeast Point, East Point** and **Southeast Bend** are situated on the E side of the reef.

The fore part of a vessel, standing up-ended and 12 m in height, was reported in 1926 to be on the NE edge of the reef. In 1968 the conspicuous wreck of *SS Loyal Fortunes*, 3 miles W of Northeast Point, was reported to be a good radar target.

2.123

Two channels, known respectively as North Channel and South Channel give access to the lagoon, one either side of Pratas Island; many coral knolls exist in these channels and in the lagoon.

South Channel is the better of the two, being wider, a little deeper and comparatively free from coral knolls. A white sandspit, on which the sea breaks, with a W swell, lies on the N side of the channel 2 miles S of the W extremity of Pratas Island. In 1966, three pairs of **leading beacons** stood near the SE end of the island; the centre pair, in line bearing 030°, led through South Channel to the vehicle ramp on the beach. The channel was also marked by two buoys (black conical, triangular topmarks), the outer buoy being moored 1 mile SSW of the light-structure on the SE end of the island.

North Channel is entered 2¼ miles N of Pratas Island; it contains many coral heads, some with a depth of only 0·6 m (2 ft) over them.

2.124

Off-lying shoal. A coral shoal, with a least depth of 9·1 m (30 ft) over it, which has not been examined, lies outside the 200 m (109 fm) line, 2¾ miles SW of the W extremity of Pratas Island. Depths in the vicinity are irregular and vary from 10 to 65 m (33 ft to 36 fm).

2.125

Anchorages. Although Pratas Reef is steep-to in most parts, there are several spots where, in case of necessity, anchorage can be obtained outside the breakers, particularly on the W side abreast the middle of North and South Channels where an area ½ to 1 mile wide outside the 20 m (11 fm) line has been swept. Good anchorage in the NE Monsoon in depths from 18 to 37 m (10 to 20 fm) can be obtained abreast the entrance to South Channel. In 1949 HMS *St Brides Bay* anchored in 30 m (16 fm) with the SE extremity of Pratas Island bearing 072° distant 2½ miles. A vessel of light draught can anchor in safety on the reef in the middle of South Channel in a depth of 6 m (20 ft), or cross it and anchor inside the lagoon on a fine sand bottom.

Directions. During the strength of the monsoon always endeavour to pass to leeward of Pratas Reef, on account of the invariable set of the current to leeward. Soundings give no warning of approach to the reef and the weather is frequently thick and hazy in the vicinity. The safest quarter to make the reef is from W, as the island is on this side and the currents set in a NE or SW direction according to the prevailing monsoon.

Two ammunition **dumping grounds** are situated 1¼ and 5¼ miles, respectively, SW of the SE extremity of

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Pratas Island. A third ammunition dumping ground is situated 1¾ miles SSE of the same point.

2.126

Currents. At distances from 20 to 50 miles NW, through N to NE and E of Pratas Reef, the currents have been observed to be exceptionally strong, and **tide-rips** which occasionally appear like breakers have been seen. The area E of Pratas Reef abounds with discoloured water.

Pratas Island

2.127

Pratas Island (Tung-Sha Tao) (20° 42′ N, 116° 43′ E), 160 miles SE of Hong Kong, lies on the W side of Pratas Reef. The island is covered with scrubby bush, and is 12 m (39 ft) high to the top of trees. In the hazy weather which prevails in this locality during the NE Monsoon, from February to April, the island is seldom seen beyond a distance of 5 or 6 miles, and the breakers at the edge of the reef may possibly not be seen until within a distance of 1 mile. The airfield control tower which stands 6½ cables WNW of the SE extremity of the island is conspicuous and presents a good radar target. A **light** is exhibited from a metal framework structure, 26 m in height, situated near the SE end of the island.

The island is composed of sand and has a shallow inlet on its W side, which affords shelter to the Chinese fishermen who come here in the early part of the year.

On the NE side of the island, where there is a settlement, are two jetties; the principal one is concrete 18 m long with a depth of 1·8 m at its head. The other jetty is only suitable for very light draught boats, and there are several rocks in its vicinity. There is a vehicle ramp on the beach, with bollards set in concrete clumps in the S side of the island near its E end. In 1963 the jetties were stated to be in a state of disrepair and unusable. An aircraft landing strip 1500 m long and orientated 100°–280° is situated in the N part of the island.

Chart 2661b

Vereker Banks

2.128

Vereker Banks (21° 05′ N, 116° 00′ E) situated 120 miles SE of Hong Kong, are two dead coral banks with deep water between and around them. **South Vereker Bank** has a least depth of 59 m (32 fm) over it, and **North Vereker Bank** a least depth of 64 m (35 fm) over it. There are heavy overfalls and tide-rips in their vicinity.

Current. In February, the prevailing current sets between WNW and WSW in the vicinity of Vereker Banks, with a rate of ½ to 1 knot; at times it sets to windward, and with calms or light SW winds it sets between SSE and ESE at a rate of ¼ to 1 knot.

A depth of 11·9 m (6½ fm) exists 37 miles SW of South Vereker Bank in approximately 20° 39′ N, 115° 19′ E.

In 1957, a bank, with depths of 12·8 m (7 fm) near its SW end and 34·7 m (19 fm) nears its NE end, was reported to extend 26 miles NE from a position 12 miles NNW from the shallowest part of North Vereker Bank. In 1961 depths of 9·1 m (5 fm) and 9·8 m (5¼ fm) were reported to lie 3 miles farther N of this bank.

A below-water rock, the existence of which is doubtful, lies 30 miles NNW of North Vereker Bank.

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CHAPTER 3

EAST COAST OF PENINSULAR MALAYSIA AND THAILAND FROM TANJONG LOMPAT TO TUMPAT; WITH OFF-LYING ISLANDS AND DANGERS

EAST COAST OF PENINSULAR MALAYSIA

Charts 2414, 3543

3.1

The E coast of the Peninsular Malaysia S of latitude 1° 34′ N, including Remunia Shoals, is described in *Malacca Strait and West Coast of Sumatera Pilot.*

To the N of latitude 1° 34′ N to Tumpat, 305 miles NNW, the E coast of Peninsular Malaysia is characterised by low swampy areas with numerous rivers discharging into the sea. Coastal ridges and hills extend to the coast at isolated places. In general, the off-lying islands are quite high, wooded, and provide good landmarks for coastal navigation.

An interesting phenomenon, apparently caused by the impingement of the South China Sea currents on the coast, occurs at river mouths along this coast. Rivers N of the point of impingement, about 5° N, build sand-bars which curve N and the river mouths remain on the N side of the sand-bars. To the S of the point of impingement a similar action takes place toward the S. A river N of the impingement point turns sharply N and its discharge builds a sand-bar as it runs N to the sea. One effect of this phenomenon is the gradual movement of the coast to seaward.

3.2

Tidal streams generally set along the E coast of Malaysia at a rate not exceeding 1½ knots. During prolonged strong winds, the tidal streams are masked by the currents set up by them; in particular the current sets S during the NE Monsoon in winter and N during the SW Monsoon in summer. For example, in July, 1940, a NW set of 2¼ knots over a period of 12 hours was experienced between the entrance to Singapore Strait and Pulau Tioman (3.42), the vessel passing E of Pulau Aur (3.35).

3.2a

Submarine exercise areas exist 15 miles SE and 50 miles SE of Pulau Aur (3.34), and 22 miles NE of Pulau Tioman (3.41). See also Admiralty Notice to Mariners No 8 of the current year.

3.3

Caution. Numerous drilling rigs, production platforms, submerged wellheads, vessels engaged in offshore exploration, etc, exist within the area bounded by positions:

4° 21′ N, 105° 01′ E	7° 42′ N, 103° 12′ E
6° 44′ N, 102° 18′ E	5° 40′ N, 105° 48′ E
7° 24′ N, 102° 40′ E	5° 06′ N, 105° 29′ E.

Vessels are advised to avoid the area if possible or to navigate with caution when passing through it. See 1.9a and 3.103.

Fishing stakes may be encountered off the E side of Peninsular Malaysia between the 15 m (49 ft) line and the coast. During the NE Monsoon these are frequently destroyed and wooden stakes, often below water, which are dangerous to small craft, may be encountered anywhere along the coast.

TANJONG LOMPAT TO TANJONG TENGGAROH

Chart 2403

3.4

Tanjong Lompat (1° 35′ N, 104° 16′ E) is situated at the N end of a bay where foul ground extends ½ mile offshore. A rock, which dries 0·9 m (3 ft) lies 1½ cables E of Tanjong Lompat.

Between Tanjong Lompat and **Tanjong Balau,** 1½ miles N, the coast forms a bay. A group of rocks, the highest of which has an elevation of 3 m (10 ft), lies close offshore ½ mile NW of Tanjong Balau.

3.5

Tanjong Siang (1° 39′ N, 104° 15′ E) lies 2½ miles NNW of Tanjong Balau. Several rocks, which dry from 0·3 to 1·2 m (1 to 4 ft), lie within 6 cables of Tanjong Siang.

The coast between Tanjong Siang and **Tanjong Kelesa (Kelesom),** 4 miles NNW, is bordered by trees about 43 m (141 ft) high.

Between Tanjong Kelesa and Tanjong Sedili Kechil, 10 miles NNW, the coast is backed by hills close inshore; **Bukit Gemoh (Gemok),** 70 m (230 ft, charted as 330 ft) high, lies 3 miles NNW of Tanjong Kelesa and 3½ cables inland. Several patches, which dry from 0·9 to 2·1 m (3 to 7 ft), lie close offshore within 1 mile of Bukit Gemoh.

Charts 1367, 2403

Telok Mahkota

3.6

Telok Mahkota (Jason Bay) is entered between **Tanjong Sedili Kechil** (1° 51′ N, 104° 09′ E), which is 85 m (279 ft) high to the tops of the trees, and **Tanjong Sedili Besar,** 47 m (154 ft) high to the tops of the trees, 4 miles NNW. A reef extends ¾ mile E from Tanjong Sedili Kechil, and a rock, with a depth of less than 2 m (6 ft) over it, lies 3 cables NW of this point.

Chart 1367

Foul ground, near the outer end of which are two rocks, 4 and 2 m (12 and 8 ft) high, extends 1 mile SE from Tanjong Sedili Besar. A **light** for the use of fishermen, is occasionally exhibited from a structure situated on the 4 m (12 ft) rock.

Sungai Sedili Kechil, which has a depth of 0·3 m (1 ft) in its entrance, discharges into the S end of Telok Mahkota close W of Tanjong Sedili Kechil.

3.7

Sungai Sedili Besar flows into the N end of Telok Mahkota; it is fronted by a bar, which is subject to change, with a least depth of 0·3 m (1 ft) over it. The entrance lies between Tanjong Sedili Besar and **Pulau Tagal,** a densely wooded island 4½ cables W of the point. A reef, on which there are two rocks the N of which is

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½ m (2 ft) high, is situated 1¼ cables NNE of Pulau Tagal. Between this reef and **Tanjong Lembu,** 1¼ cables W, there is some foul ground with a narrow channel between it and the reef. At **Kampong Sedili Besar,** a fishing village on the E side of the entrance to Sungai Sedili Besar, there is a wooden jetty with a custom house close to it.

A pylon, 15 m (49 ft) high, stands on the ½ m (2 ft) rock which lies on the reef 1¼ cables NNE of Pulau Tagal. The pylon which is a good landmark, supports an overhead telephone cable between the end of the jetty at Kampong Sedili Besar and Tanjong Lembu.

A concrete jetty 18 m (59 ft) in length with a least depth of 2·4 m (8 ft) alongside is situated 2½ cables W of Tanjong Lembu. **Mawai,** a village 11 miles WSW of Tanjong Lembu, is connected by road to this jetty.

Depths of up to 12·5 m (41 ft) may be found in Sungai Sedili Besar 12 miles above the entrance and of 9·1 m (30 ft) at Mawai.

3.8

Tidal streams in the river run at a rate of 2 to 3 knots, but the rate of the out-going stream may be accelerated when the river is in flood. The river is tidal as far as Mawai, 20 miles up river.

Directions. Boats entering Sungai Sedili Besar pass S of the foul ground extending 1 mile SE from Tanjong Sedili Besar and close E of the charted position of the dangerous wreck on the bar. Two beacons (pole) mark the limit of the drying sandbank on the W side of the entrance; they are situated close together, 4 cables S of Pulau Tagal.

In 1969, the least depth in the entrance was 1·2 m (4 ft).

3.9

Spare.

Chart 769

3.10

The coast between Tanjong Sedili Besar (1° 55′ N, 104° 08′ E) and Tanjong Tenggaroh, 21½ miles NNW, is low and wooded with a few clearings extending to the beach. Numerous rocks and reefs, above water, awash and below water, lie within the 5 m (16 ft) line which lies up to 1½ miles offshore except off the bay S of Tanjong Tenggaroh where it lies 2½ miles offshore. **Tanjong Logo** and **Tanjong Petai** lie 7 and 9 miles, respectively, NNW of Tanjong Sedili Besar; **Tanjong Leman** (2° 09′ N, 104° 01′ E) lies 6½ miles farther NNW.

3.11

Tanjong Tenggaroh (2° 15′ N, 103° 59′ E) is a high prominent point.

OFF-LYING ISLANDS AND DANGERS

3.12

Tokong Yu (Pulau Yu) (2° 07′ N, 104° 15′ E), a bluff wooded islet, 47 m (155 ft) high to the tops of the trees, lies 12 miles ENE of Tanjong Petai and is the SE islet of a chain of islets and dangers extending as far as Pulau Tinggi, 13 miles NW.

Tokong Chopak, 5 m (16 ft) high, **Tokong Blalang,** 30 m (98 ft) high, **Tokong Chondong,** 43 m (141 ft) high, and **Tokong Gantang,** 33 m (108 ft) high lie from 3½ to 6 miles NW of Tokong Yu.

A rock, with a least depth of 9·1 m (30 ft) over it, lies 4 cables NW of Tokong Chopak. A rocky ledge, with a least depth of 1·8 m (6 ft) over it, joins Tokong Chondong and Tokong Gantang and thence extends 1 cable NW to a rock which dries 1·2 m (4 ft). A rock with a least depth of 9·1 m (30 ft) over it, lies 3½ cables N of Tokong Gantang; otherwise the general depths between these islands range from 13 to 20 m (43 to 65 ft).

3.13

Pulau Lima Besar (2° 13′ N, 104° 09′ E) has five distinct pinnacles 52 m (171 ft) high, and lies on a rocky bank 2 miles NW of Tokong Gantang. It is connected by a drying coral reef to **Pulau Lima Kechil,** 53 m (174 ft) high close N of it.

Tokong Sangoe, 21 m (69 ft) high, lies 8 cables W, and **Tokong Raket,** two rocks, the highest of which is 30 m (98 ft) high, lies 1 mile ESE of Pulau Lima Kechil.

Karang Ambong, a rock with a depth of 0·9 m (3 ft) over it, lies 7 cables SW of Pulau Lima Kechil.

All these islets just described are either bare rocks or are covered with coarse grass and a few bushes.

3.14

Pulau Sibu, the largest of the Sibu group, 154 m (505 ft) high near its SE end, lies with its SE extremity 4 miles WSW of Pulau Lima Besar. **Pulau Sibu Tengah,** 4 m (13 ft) high, **Pulau Sibu Hujong** and **Pulau Sibu Kukus** together with other rocks, above and below water, lie on a bank extending about 2 miles SE from Pulau Sibu. Several rocks, with depths of less than 2 m (6 ft) over them lie close off the S side of Pulau Sibu and there is a shallow bay encumbered with numerous dangers on the W side of the island. The NW side of the island is steep-to, but several shallow patches lie within 2 miles of the NW end of the island.

3.15

Sibu Channel leads between the Sibu group of islands and rocks, and the coast. On its E side, NW of Pulau Sibu, the channel is encumbered by a number of patches, the shallowest of which has a depth of 5·2 m (17 ft) over it, situated 1¼ miles from the NW point of the island.

Good **anchorage,** sheltered from the NE Monsoon, may be obtained in a depth of 10 m (33 ft) in Sibu Channel, W of the reef extending from the W side of Pulau Sibu, with the summit of Pulau Tinggi bearing 028°.

3.16

Pulau Tinggi (2° 18′ N, 104° 07′ E), 609 m (1998 ft) high, is situated 4 miles NE of Pulau Sibu; it is jungle covered and rises in the centre to a remarkable cone-shaped peak. The inhabitants live mostly on the SW side of the island.

Within the 10 m (33 ft) line, which extends 1¾ miles SE from Pulau Tinggi, there are many tree-covered islets, rocks and dangers. **Pulau Mentigi,** 20 m (66 ft) high, **Pulau Nanga Kechil,** 29 m (95 ft) high, and **Pulau Nanga Besar,** 53 m (174 ft) high, all the heights being to the tops of the trees, are a chain of islets lying 6 cables SW of Pulau Tinggi, on a drying reef strewn with rocks; the reef extends 3 cables NW of Pulau Mentigi. Between these islets and the shore there is a boat channel with depths of not less than 3·4 m (11 ft) which is much used by local fishing craft as an anchorage, and is sheltered from the NE Monsoon. **Pulau Apil,** 30 m (98 ft) high to the tops of the trees, and a rock, 2 m (7 ft) high, lie on a drying reef extending 3 cables SW from Pulau Tinggi.

A rock, 1½ m (5 ft) high, stands 1½ cables SE of Pulau Tinggi just off the edge of the coral.

Anchorage, sheltered from the NE Monsoon, may be obtained by vessels with local knowledge SW of the islets bordering the S side of Pulau Tinggi, in depths from 11 to 18 m (36 to 60 ft). There are, however, a number of fishing stakes in the area. A fishing hut, from which a line of fishing stakes extends 3 cables in a NNE

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direction, is situated 1½ miles S of Pulau Tinggi.

3.17

Pulau Simbang, 44 m (144 ft) high to the tops of the trees, lies 1½ miles SE of Pulau Tinggi. **One Tree Rock,** 22 m (72 ft) high, stands 4 cables N of Pulau Simbang. A detached rocky ledge which dries 2·4 m (8 ft) and is uncovered at most states of the tide, lies close E of One Tree Rock.

Pulau Ibol (Iboi) (2° 18′ N, 104° 09′ E), 105 m (344 ft) high to the tops of the trees, lies 5 cables off the NE side of Pulau Tinggi, with **Pulau Penyabong** midway between them. Two drying rocks lie 1 cable off the E side of Pulau Ibol.

3.18

Gebang Rocks, which dry 0·6 m (2 ft) and on which the sea breaks during the NE Monsoon, lie 1¼ miles N of Pulau Tinggi, and a rock with a least depth of 6·4 m (21 ft) over it lies 4 cables farther S.

Siam Knoll, with a depth of 1·8 m (6 ft) over it, lies on the 10 m (33 ft) line 3 cables N of Pulau Tinggi; otherwise the N side of Pulau Tinggi is steep-to.

In 1975 HMS *Diomede* (2500 tons) obtained good **anchorage** 9 cables SW of the NW extremity of Pulau Tinggi, in a depth of 25 m (14 fm). A strong **current,** with an estimated rate of 2½ knots, was reported to run S round the NW extremity of the island and down its W side. There is a small pier, accessible at high water, E of this anchorage.

3.19

Batu Murau, 1½ m (5 ft) high, lies 4 miles W of Pulau Tinggi. Rocks and shoals extend 3 cables NW and SW from it, and patches with a least depth of 9·1 m (30 ft) lie ½ mile NW.

TANJONG TENGGAROH TO TANJONG RESANG

3.20

Between Tanjong Tenggaroh (2° 15′ N, 103° 59′ E) and Tanjong Sekakap, 6½ miles NNW, the coast is mainly steep and rocky and interspersed with sandy beaches.

Tanjong Murau, 111 m (364 ft) high to the tops of the trees and prominent, lies 4 miles NNW of Tanjong Tenggaroh.

Tanjong Sekakap is 107 m (351 ft) high to the tops of the trees.

3.21

Pulau Blanah (2° 21′ N, 103° 55′ E), 1¼ miles NW of Tanjong Sekakap and 27 m (89 ft) high to the tops of the trees, lies on the edge of a rocky ledge extending from the shore. **Sungai Sekakap** flows into the small bay thus formed.

The coast N of Pulau Blanah is low-lying and sandy for the first 3 miles, and here **Sungai Jemaluang** discharges to the sea: thence for 4 miles to Mersing, it is steep and rocky with foul ground and drying rocky ledges extending 2 cables from the shore.

Two prominent radio masts, exhibiting obstruction lights, stand at an elevation of 114 m (374 ft) on the S end of hills 5 miles WNW of Pulau Blanah.

Mersing

3.22

The town of **Mersing** (2° 26′ N, 103° 51′ E), situated at the mouth of **Sungai Mersing,** 6¾ miles NW of Pulau Blanah, is a small coastal trading town which, in 1964 had a population of 8800. It is a port of entry and has a small customs house. Salt is imported from Terengganu (3.108) but there are no exports by sea. The harbour is extensively used by fishermen during the summer months.

A **light** is exhibited from a white metal framework tower, situated in the centre of the town on the S side of the entrance to Sungai Mersing. The light is difficult to distinguish from the lights of the town. A radio mast 2½ miles S of the light-structure and a mosque, with a green tiled dome and a minaret, 3¾ cables SSE of the light-structure are conspicuous.

Batu Chawang, 10 m (33 ft) high and reddish in colour, situated on the S side of the river entrance, and a meteorological hut with a flagstaff, standing on the summit of a small hill 1 mile NW of the light-tower, are prominent landmarks.

A rock 5 m (16 ft) high lies 4 cables W of Batu Chawang.

Inner Light-beacon (white metal framework structure with black bands) stands on the NW side of the channel inside the bar 6 cables NE of Mersing Light. **Outer Light-beacon** (white mast with red bands on a concrete base) stands on the seaward side of the bar 3 cables NE of Inner Light-beacon. The wreckage of a former Outer Light-beacon extends about 120 m W from the present structure. Both light-beacons are difficult to distinguish by day.

Directions. In 1980 the bar, which is of sand, dried at low water. The best water was with Inner Light-beacon bearing 234½° until Mersing Light bore 221½°; thence along that bearing to the river entrance. The depths vary from year to year with the NE Monsoon, and local knowledge is necessary. There is ample water in the river channel for any craft that can cross the bar, as far as the Customs Wharf, a concrete structure alongside which there is a least depth of 2·4 m at mean high water springs, situated on the S side of the river close to the entrance.

Supplies. Fresh water is available at the Customs Wharf. Small quantities of diesel fuel and petrol are obtainable, and also fresh local vegetables and other provisions.

Facilities. There is a hospital with 70 beds. A small boat repair yard is situated in the harbour.

Communications. Small coasters occasionally call, but there is no regular service. There is communication by road with Padang Endau, Kota Tinggi and Keluang, and a small airstrip is situated 3 miles SE of the town near Kuala Jemaluang.

The police maintain a radio link with Johor Bahru.

3.23

Pulau Stindan (2° 29′ N, 103° 51′ E), 85 m (279 ft) high, lies 2½ miles N of Mersing and on the outer edge of the coastal bank about 2 miles offshore. See view 1.

A **light** is exhibited from the SE extremity of the island. **Batu Gajah,** 45 m (148 ft) high, lies 1 mile N of the light-structure on Pulau Stindan.

A prohibited area lies within 1 mile of Batu Gajah. A light-buoy (yellow) is moored close NE of Batu Gajah.

3.24

Between **Tanjong Selantai** (2° 30′ N, 103° 51′ E), which has an elevation of 143 m (469 ft), and **Tanjong Resang** 5 miles NNW, there are two bays in the coast separated by **Tanjong Arong. Pulau Puchong,** 16 m (52 ft) high, is situated 1 mile SE of Tanjong Resang and ½ mile off the shore of the N bay. Numerous rocks lie within the 2 m (6 ft) line between Tanjong Arong and Tanjong Resang.

Gunong Arong, 273 m (896 ft) high, lies 1½ miles SW of Tanjong Resang and is easily identifiable.

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Off-lying islands and dangers

3.25

Pulau Babi Besar (2° 26′ N, 103° 59′ E) lies 9 miles NW of Pulau Tinggi (3.16) and 6 miles off the coast. It is thickly wooded, with four separate summits, the highest of which is 251 m (823 ft) high.

Kampong Busong is situated on the SW side of the island, with a wooden pier extending to the edge of the fringing coral reef; this pier was in a bad state of repair in 1953.

Batu Tikus, 9 m (30 ft) high, and **Batu Sakit Mata,** 2 m (7 ft) high, are rocky outcrops on a bank with general depths from 13 to 18 m (43 to 59 ft) which lies parallel to the coast, between 2½ and 3 miles off the E side of Pulau Babi Besar.

A channel, about ½ mile wide with a least depth of 11·6 m (38 ft) in the fairway, but only suitable for vessels with local knowledge lies between Pulau Babi Besar and Pulau Babi Tengah.

Pulau Babi Tengah (Pulau Babi Kechil (South)) with an elevation of 101 m (331 ft) to the tops of the trees, lies 1¼ miles NNW of Pulau Babi Besar and **Pulau Babi Hujong (Pulau Babi Kechil (North))** with an elevation of 122 m (400 ft) to the tops of the trees, which lies 6 cables farther in the same direction. Both islands are planted with coconut palms; there are sandy beaches on the SW sides of the islands where the land slopes gently, but the NE sides are steep and rock bound. A rock, 5 m (16 ft) high, lies 2 cables NE of Pulau Babi Tengah, and there are several above-water rocks farther inshore. Foul rocky ground exists between the two islands and a vessel should not attempt to pass between them.

3.26

Pulau Rawa (2° 31′ N, 103° 59′ E) lies 2 miles NE of Pulau Babi Hujong, and has an elevation of 113 m (371 ft) to the tops of the trees with which it is covered. Good landing is possible on the sandy beach on the SW side of the island where there are some fishing stakes. The NE side of the island is steep-to with precipitous cliffs. A rock ½ m (1 ft) high lies 1 cable S of the island.

Anchorage can be obtained in depths of 20 m (11 fm), mud and sand, midway between Pulau Babi Hujong and Pulau Rawa.

3.27

A chain of islets and rocks extends 3 miles NW from Pulau Rawa. **Pulau Kalabang,** a bare rock 23 m (75 ft) high, lies 4 cables NW of Pulau Rawa; **Pulau Goal,** a rocky grass-covered islet 56 m (184 ft) high, lies 3 cables farther NW. **Pulau Mensirip,** a tree-covered island 49 m (161 ft) high, lies 2 miles NW of Pulau Rawa. The channels between these islands are obstructed by rocks and reefs and vessels should not attempt to pass between them.

Pulau Harimau, the NW islet of the group, with an elevation of 91 m (299 ft) and covered with grass, lies 3 miles NW of Pulau Rawa; it is steep-to except on its SW side where there are some below-water rocks close inshore. Between Pulau Mensirip and Pulau Harimau, there is a channel 7 cables in width which is free from dangers.

TANJONG RESANG TO BLAIR HARBOUR

3.28

Between Tanjong Resang and **Tanjong Penyabong** (2° 39′ N, 103° 46′ E), 5 miles NW, there are two shallow bays separated by Pulau Mawar which lies 3 miles NW of Tanjong Resang; a rocky shoal, with a depth of less than 2 m (6 ft) over it, lies 1 mile NW of Tanjong Resang.

Pulau Mawar consists of two islets lying on the coastal drying bank. The SE islet, which is the larger, has very broken contours and is 72 m (236 ft) high. The NW islet has two remarkable pillar rocks, 24 m (79 ft) high; a small rock, 7 m (23 ft) high, lies close NW of this islet. Depths of less than 2 m (6 ft) extend 4 cables E of Pulau Mawar, and a rock, which dries 2·1 m (7 ft), lies close to its SE extremity; a rock, 1 m (3 ft) high, lies 4 cables SE of Pulau Mawar.

Sungai Mawar, at the mouth of which is **Kampong Mawar,** enters the sea SW of Pulau Mawar. **Bukit Tioman Darat,** a conical hill 136 m (446 ft) high and situated 1 mile S of the entrance to Sungai Mawar, is readily identifiable.

Telok Sari, the bay between Pulau Mawar and Tanjong Penyabong is shallow and there are numerous rocks, both above and below water within the 2 m (6 ft) line; two rocks 16 and 2 m (52 and 7 ft) high, are situated in the NW corner of this bay.

Malang Gading, which consists of two groups of rocks 2 cables apart, the N of which is 3 m (10 ft) high and the S 2 m (7 ft) high, lies close outside the 5 m (16 ft) line, 1¼ miles N of Pulau Mawar.

3.29

Pulau Acheh (Kaban), an uninhabited island covered with dense jungle, lies 1 mile NE of Tanjong Penyabong; the highest of its several summits, which is situated near the SE end of the island, has an elevation of 154 m (505 ft) to the tops of the trees. The E side of the island is rocky and steep, but the W side, where there are sandy bays suitable for landing, is more sloping. Two rocks, ½ m and 16 m (2 and 52 ft) high, lie close to the S end of the island, and a small islet, with an elevation of 43 m (141 ft) to the tops of the trees, lies close to its N end. See view 1.

Batu Berdawan, a rock awash, lies 4 cables SW of the S end of Pulau Acheh, and there is a rocky ridge running from it to the shore of the island.

Blair Harbour

3.30

Blair Harbour is situated W of Pulau Acheh and may be entered by small vessels with local knowledge from SE or from NE. The SE entrance lies between Tanjong Penyabong and Pulau Acheh, passing W of Batu Berdawan in a least depth of 7·0 m (23 ft) in the fairway, but the channel is very narrow. The NE entrance lies between Pulau Acheh and **Pulau Tunus,** a group of three islets 1 mile to NW. These islets are steep-to and sparsely covered with vegetation, the highest having an elevation of 43 m (141 ft); the channel is much contracted by the dangers on either side and has depths from 11 to 13 m (36 to 43 ft).

Pulau Tengah (2° 40′ N, 103° 45′ E), 76 m (249 ft) high, lies 1 mile N of Tanjong Penyabong. **Pulau Pelandok,** 70 m (230 ft) high, lies 6 cables S of Pulau Tengah.

Pulau Lalang, 38 m (125 ft) high, lies on the S side of Blair Harbour 2¼ miles WSW of Pulau Tengah. **Batu Doyak,** which dries 1·8 m (6 ft) lies 1½ miles NW of Pulau Tengah. **Pulau Layak,** 78 m (256 ft) high, at its SE end lies ¾ mile NW of Pulau Tunus; the summit of Pulau Layak is covered with low jungle, and the remainder with grass and low scrub. Landing is practicable at the SE end of the SW side of the island. See view 1.

Safe **anchorage** for small craft may be obtained in Blair Harbour, sheltered from the prevailing winds, in a

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depth of 7 m (23 ft), stiff mud, off the W side of Pulau Acheh between Pulau Tunus and Tanjong Penyabong.

Off-lying islands and dangers

3.31

Pulau Mertang Barat (Achi) (2° 39′ N, 103° 53′ E), 59 m (194 ft) high, is the NW and highest of a group of three small rocky islets which lie close together 6 miles NW of Pulau Harimau (3.27). A **light** is exhibited from a white metal framework tower, 10 m (33 ft) in height, situated on Pulau Mertang Barat. The centre islet of the group has an elevation of 38 m (125 ft) and the SE islet an elevation of 46 m (151 ft). These islets are mainly covered with grass and a few trees.

Burden Patches consist of three shoals with depths between 10·1 and 11·0 m (33 and 36 ft) over them, lying between 2 miles SW and 3 miles SSW of Pulau Mertang Barat.

3.32

Pulau Sembilang and **Pulau Sri Buat (Sribuat),** two large densely wooded islands, lie 2 miles NE of Pulau Mertang Barat. Pulau Sembilang, which is uninhabited, has an elevation of 232 m (761 ft) to the tops of the trees on its NW side. Pulau Sri Buat has an elevation of 139 m (456 ft) to the tops of the trees near the SE end of the island. Pulau Sembilang and Pulau Sri Buat, are separated by a shallow passage encumbered with sand and coral which dries in patches and is only suitable for very shallow draught boats at high water. A wooded islet, 21 m (69 ft) high to the tops of the trees, is situated on the SE side of this boat passage; a remarkable pillar rock, 15 m (49 ft) high, stands at the NE end of the boat passage.

On the S side of Pulau Sri Buat a narrow creek runs in a N direction and almost divides the island in two, but merges in a mangrove swamp at its N end. The creek, which is shallow, is used by fishing boats; there is a wooden pier and several huts occupied by fishermen, who are the only inhabitants of the island.

Good **anchorage** may be obtained on the bank extending SE from Pulau Sri Buat in a depth of 16 m (52 ft), mud and sand, 1¼ miles offshore, taking care to avoid the fishing stakes which extend over this bank for a distance of 2¼ miles in a SE direction from the island.

Pulau Santu, with an elevation of 72 m (236 ft), is a small grass-covered islet lying 4 cables NE of Pulau Sri Buat.

3.33

Mitchell Patches, with a least known depth of 10·5 m (34 ft), is a fairly extensive bank of sand over mud on underlying rock with general depths of less than 20 m (11 fm) extending 6 miles NW from a position ½ mile N of Pulau Sembilang (2° 42′ N, 103° 53′ E). The channel between this bank and the islands to S is comparatively deep and free from dangers.

Anchorage, which is well sheltered from S, may be obtained on the S edge of Mitchell Patches, 1 mile NW of Pulau Sri Buat in a depth of 15 m (49 ft), mud, sand, and shell.

Remora Patches, over which there is a least depth of 13·7 m (45 ft), lie 5½ miles WNW of Pulau Sembilang and 2 miles NE of Pulau Acheh (3.26).

OUTLYING ISLANDS

Charts 769, 3543

3.34

A chain of islands lies parallel to Peninsular Malaysia at a distance of about 30 miles.

Tidal streams, in the vicinity of these outlying islands, attain no great strength and are swamped by the oceanic monsoon current. The set, when stream and current are setting in the same direction, may attain a rate of at least 1½ knots. As may be expected, the rate increases and is accompanied by strong eddies about the appropriate corners of offshore islands; during the SW Monsoon, from May to October, these are particularly marked on the NW and SE corners, as the general direction of set is usually between 350° and 010°.

Pulau Aur

3.35

Pulau Aur (2° 27′ N, 104° 31′ E), 35 miles ENE of Tanjong Tenggaroh (3.11) and the SE of the outlying islands is densely wooded and steep-to. It has two main peaks, **Bukit Makum,** the SE and best defined peak is 538 m (1765 ft) high, and the NW peak 445 m (1460 ft), both to the tops of the trees. When viewed from a great distance on a NE or SW bearing this saddle-shaped island often presents the appearance of being two islands. Pulau Aur is inhabited, having its main settlement, Kampong Berhala (3.38), at its NW end; coconut plantations, which never lie far from the shore, mark other areas of habitation.

Pulau Aur *Pulau Dayang*

Pulau Aur bearing 232°, 22 miles
(Original dated 1942)

Pulau Pinang, steep-sided and rocky, is 94 m (308 ft) high to the tops of the trees and lies ½ mile SE of Pulau Aur. The channel between these two islands is deep and clear of dangers.

Three rocks and coral shoals, with depths of 9 to 10 m (30 to 33 ft) over them, lie SW of Pulau Pinang and ¾ mile off the SE coast of Pulau Aur. Strong **tidal streams** and current eddies may be encountered in this area, which should be given a wide berth.

A target, consisting of a group of nine mooring buoys, lies 2¼ miles S of Pulau Aur.

3.36

Pulau Dayang, 171 m (561 ft) high to the tops of the trees, lies off the NW end of Pulau Aur, it is steep and rocky but covered with coconut palms wherever there is sufficient hold for their roots. A group of rocks, the largest of which is 1½ m (5 ft) high, extends 6 cables E from **Tanjong Batu Ronchek,** the N point of the island.

Pulau Lang, ½ mile off the W extremity of Pulau Aur, is rocky and 55 m (180 ft) high to the tops of the trees; it is covered with palms and supports a few goats.

Fishing, particularly for barracuda, tengerry and jack, is excellent close along the steep rocky shores of all the off-lying islands, especially around Pulau Dayang and Pulau Lang.

3.37

Anchorages off Pulau Aur. Excellent sheltered anchorage in 42 m (23 fm), sand and shell, can be obtained at the NW end of Pulau Aur, equidistant between that island, Pulau Dayang and Pulau Lang, but swinging room is limited to 3 cables. No experience of conditions in bad weather is available. The E approach to this anchorage, between Pulau Aur and Pulau Dayang

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is barely 1 cable wide but is deep and clear of dangers. A good approach is made by keeping the left hand edge of Pulau Lang in the centre of the channel, bearing 235°, which leads through the whole channel. The W approaches to the anchorage on either side of Pulau Lang are deep and clear of dangers.

3.38

The main village of Pulau Aur, **Kampong Berhala,** and the school lie in a sheltered valley on the SE shore of the anchorage described above. The sandy beach fronting the village is fringed by a coral reef which extends ½ cable offshore and dries at low water springs. A remarkable pinnacle rock, 124 m (407 ft) high, known locally as **Batu Berhala China,** with two large boulders precariously balanced on top, stands 2 cables NE of the village.

A deep-water trench runs from the NW side of Pulau Dayang, close W of Pulau Lang and thence S for 2 miles; the maximum depth of 98·8 m (54 fm) lies 5 cables S of Pulau Lang. Should the inner anchorage described in 3.37 be too restricted, good anchorage may be obtained between this trench and the coast in 40 m (22 fm), sand and shell, 5 cables off the W coast of Pulau Aur and 6 cables SSE of Pulau Lang.

3.39

Tidal streams. During the SW Monsoon, the stream sets strongly around the SW end of Pulau Lang (3.36) and along the line of the deep-water trench, but does not make itself much felt in the inner anchorage, nor does it flow particularly swiftly in the narrow channel between Pulau Aur and Pulau Dayang.

3.40

Telok To Kaya, a bay on the SW side of Pulau Aur, affords good shelter during the NE Monsoon. The bottom is irregular within the bay, and discoloured water caused by tidal eddies gives the impression of shallow water. Small vessels with local knowledge can obtain anchorage close inshore, but larger vessels are advised to anchor in 42 m (23 fm), sand and shell, keeping the left hand edge of Pulau Dayang just open of the left-hand edge of Pulau Aur, and **Tanjong Jongkar,** the SW extremity of Pulau Aur, bearing between 100° and 110°. Alternatively, large vessels may obtain good anchorage 5½ cables offshore, in 40 m (22 fm) sand, with the left-hand edge of Pulau Aur bearing 335° and the right-hand edge bearing 117°.

Pulau Pemanggil

3.41

Pulau Pemanggil (2° 35′ N, 104° 20′ E) lies 11½ miles NW of Pulau Aur; it has two main and a number of subsidiary peaks. **Bukit Topo,** the SE peak rises steeply from **Tanjong Pandan** at that end of the island to a height of 433 m (1421 ft) to the tops of the trees. The less distinctive NW summit rises to an elevation of 386 m (1266 ft) to the tops of the trees 1 mile SE of **Tanjong Epil,** the NW extremity of the island. A remarkable dome-shaped rocky summit with smooth vertical sides, 319 m (1047 ft) high, lies ½ mile SSW of the NW summit; this summit is visible only from the S and W sides of the island.

Pulau Pemanggil, bearing 203°, distant 45 miles
(Original dated 1872)

Pulau Pemanggil is steep-to on all sides, though partially fringed by a narrow coral reef and rocks, close inshore, particularly in the bays. A rock, which dries 2·1 m (7 ft), lies 1 cable offshore in the N part of **Telok Kador,** the main bay S of **Tanjong Lanchong** on the E side of the island.

The inhabited part of the island, distinguished by coconut tree plantations, lies close to the shore of the two bays on the SW side of the island, where good **anchorage** may be found in 33 to 39 m (18 to 21 fm), sand and shell, as convenient.

Pulau Tioman

3.42

Pulau Tioman, a pear-shaped island with Tanjong Lanting (2° 43′ N, 104° 13′ E), its SE extremity, situated 10 miles NW of Pulau Pemanggil, is the largest island off the E coast of Peninsular Malaysia. Pulau Tioman is mountainous, the highest peak being **Gunong Kajang,** which has an elevation of 1053 m (3455 ft) to the tops of the trees. It forms part of the Pekan district of the state of Pahang, and is inhabited by about 1000 Malays. The inhabitants are dispersed around the island, the presence of coconut palms usually indicate where they live, but there are no large Kampongs. Cultivation is spasmodic and limited to the coastal strip; elsewhere the island is covered with dense jungle.

3.43

Tanjong Lanting, the SE extremity of Pulau Tioman, can be identified by a remarkable twin-peaked hill, 456 m (1496 ft) high to the tops of the trees, which rises close to the point; a remarkable flat-topped mountain with an elevation of 957 m (3140 ft) stands 2 miles NW of the point.

Telok Mukut (Mokut), entered between Tanjong Lanting and **Tanjong Duata,** 4 miles W, is a large sandy bay forming the S part of the island. There is a village and the valley behind the bay is comparatively cleared and cultivated. Close N and NW of Tanjong Duata are two conspicuous outcrops of rock which run sheer from the jungle, each with a twin peak. The SE outcrop, which is known locally as **Chula Naga** or **Ass's Ears,** attains an elevation of 760 m (2490 ft); **Nenek Si-Mukut,** the N summit of the NW outcrop, resembles a thumb and has an elevation of 757 m (2484 ft).

Anchorage may be obtained in Telok Mukut by vessels with local knowledge during fine weather in depths from 36 to 40 m (20 and 22 fm) sand.

3.44

Telok Nipah, a sandy bay in which there are two fresh water streams, lies 1¾ miles NW of Tanjong Duata (2° 43′ N, 104° 09′ E). Between **Tanjong Kasut,** the

(3.42) Pulau Tioman bearing 215°, 12 miles

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NW entrance point to Telok Nipah, and **Tanjong Bongkil** 2½ miles N, the coast is rocky with coral reefs extending 2 cables offshore in places.

The whole of the SW coast of Pulau Tioman is steep-to, with the 10 m (33 ft) line at no point lying more than 3 cables offshore. Inside the 10 m (33 ft) line there are numerous coral heads and above-water rocks.

A rock, 4 m (13 ft) high, lies 3 cables N of Tanjong Bongkil.

Pulau Tumuk (2° 47′ N, 104° 07′ E) ½ mile NNE of Tanjong Bongkil, is a small wooded islet separated from the coast by a drying bank; this islet has an elevation of 33 m (108 ft) to the tops of the trees.

Chart 1394

Telok Bunat is a sandy bay, entered between Pulau Tumuk and **Tanjong Batu Panjang,** 6 cables NE.

3.45

Telok Tekek is entered between Tanjong Batu Panjang and **Tanjong Penuba,** 3½ miles NNE. With the exception of a shoal off Pulau Rengis, and a rock with a depth of 1·8 m (6 ft) over it, 6½ cables SSW of Tanjong Mesoh (3.46), the bay is clear of dangers and provides good sheltered anchorage.

Pulau Rengis (2° 49′ N, 104° 08′ E) is small and rocky, 24 m (79 ft) high to the tops of the few trees on it, and lies 7 cables NE of Tanjong Batu Panjang. A shallow bank of sand and coral extends 4 cables from the W side of Pulau Rengis. There is a narrow boat channel between Pulau Rengis and Pulau Tioman, but there are three drying coral heads lying 1 cable S of the islet.

Tanjong Said, a rocky point with a steep hill above it, is situated 7 cables ENE of Pulau Rengis; **Sungai Tekek** enters the sea 6 cables NE of Tanjong Said, and is the largest of the many small streams which flow into Telok Tekek. A police station is situated close to the shore, 3 cables NE of the mouth of this river. A short distance up the river, on the E bank, there is a medical dispensary, in which there are a few beds, under the charge of a dispenser.

A pier, 75 m in length, with a concrete roadway and a depth of 0·6 m (2 ft) alongside its outer end is situated 4 cables NE of the mouth of Sungai Tekek.

3.46

Tanjong Mesoh, a rocky point lies 2 miles NE of Pulau Rengis.

The shore of Telok Tekek is for the most part composed of sand, with patches of coral extending seaward in places below the high water line.

Anchorage may be obtained anywhere in Telok Tekek NE of Pulau Rengis in depths from 26 to 36 m (14 to 20 fm), mud and sand, but not less than ½ mile offshore. The holding ground is good and there is very little tidal stream. The anchorage is well sheltered from the SW Monsoon; it is also well sheltered from the full force of the NE Monsoon, but squalls may come down over the hills. Excellent landing exists close S of Tanjong Mesoh. During the NE Monsoon the bay is very sheltered and landing can be effected at all times.

In 1953 HMS *Mounts Bay* (1600 tons) obtained good shelter from the swell, even with the wind from NW, when anchored near the centre of the bay 1½ miles NE of Pulau Rengis.

3.47

Karang Pabuyong, a coral patch with a depth of 27 m (15 fm) over it, lies in the middle of a deep trench, 1¼ miles W of Pulau Rengis. **Karang Lentang** (2° 51′ N, 104° 06′ E), a ridge with a depth of 17 m (56 ft) over it, consisting of sand over rocks, lies outside the deep trench 3 miles NW of Pulau Rengis.

3.48

Between Tanjong Penuba (2° 51′ N, 104° 09′ E), and **Tanjong Sayak,** 1 mile N, there are two small rocky bays, **Telok Penuba** and **Telok Berus,** separated by **Tanjong Layar. Pulau Soyah,** small and rocky 37 m (121 ft) high to the tops of the trees, lies 3 cables N of Tanjong Sayak. The islet is separated from the shore by a narrow channel; the seaward side of the islet is steep-to. **Telok Salang,** a sandy bay close N of Pulau Soyah, provides shelter for small craft with local knowledge.

3.49

Measured distance. The S end of a measured distance of 1816·0 m (5958 ft) is marked by two metal **beacons** with white triangular topmarks, the front mark being point up and the rear point down, situated 51·8 m (170 ft) apart, 2½ cables NE of Tanjong Penuba (3.45); the N end is marked by a white triangle painted on a rock on the N side of Pulau Soyah, and by a metal beacon with a triangular topmark 61 m (200 ft) E of the rock. The running course is 010°–190°. In 1970, both the S beacons and one of the N beacons were reported missing.

Chart 769

3.50

Tanjong Salang (2° 53′ N, 104° 09′ E) is the NW extremity of Pulau Tioman and **Gua Layang Layang,** 1 mile ENE, is the N point of the island.

Bukit Perayon, the N summit of Pulau Tioman, with an elevation of 419 m (1375 ft) to the tops of the trees, is easily identifiable.

3.51

The E side of Pulau Tioman, apart from Telok Juara (3.53), presents a rugged, indented, steep, rocky shore, backed by dense jungle and scrub. The rocky points descend steeply into deep water with no off-lying dangers. The numerous small indentations are filled with rocks and jagged coral reefs along the beaches and more often than not there is sufficient sea or swell to make landing hazardous.

3.52

Tidal streams. A N-going set is usually experienced off the E coast of Pulau Tioman, with a strong counter eddy close inshore off the NE point. Telok Juara is passed by the main set and experiences only weak eddies.

Chart 1394

3.53

Telok Juara (2° 47′ N, 104° 13′ E) is situated on the E side of Pulau Tioman, 4 miles N of Tanjong Lanting (3.43), the SE extremity of the island. The bay is entered between **Tanjong Pisang Kera** and **Tanjong Ruit (One Tree Point),** 1½ miles N.

A densely wooded headland, which rises to an elevation of 183 m (600 ft) to the tops of the trees, is situated 2½ cables SW of Tanjong Ruit. Within 2 cables SE of this headland are two rocks, 5 and 1 m (16 and 3 ft) high; a detached rocky shoal, with a depth of 4·6 m (15 ft) over it, lies 3¼ cables SE from the headland.

The head of the bay consists of a shelving sandy beach, backed by coconut plantations; near the middle of the beach is **Black Rock,** a tree-covered outcrop rising to a height of 69 m (226 ft) to the tops of the trees. **Kampong Juara,** where there is a concrete pier 60 m long, is situated 2 cables N of Black Rock.

Sungai Bharu discharges into the bay at the N end, and **Sungai Mentawak** at the S end, and there is a small stream close N of Black Rock. Even during the SW Monsoon there is often sufficient swell entering the bay

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to cause difficulty in landing; surf conditions are unpredictable and the safest landing is usually in the SW corner.

The best **anchorage,** though not always free from swell, may be obtained in the SW corner of the bay, which should be approached as close as draught and size of ship permit. The holding ground is good with mud under sand.

In 1947 HMS *Penn* (1540 tons) anchored in the bay with Black Rock bearing 286°, distant 5½ cables in a depth of 15 m (49 ft), good holding ground.

Chart 769

3.54

Pulau Gut (2° 40′ N, 104° 10′ E), 49 m (161 ft) high to the tops of the trees, lies 4½ miles SW of Tanjong Lanting (3.42). The island is steep-to except off its S side where the 5 m (16 ft) line extends 2 cables offshore.

Batu Sepoy, with a least depth of 2·4 m (8 ft) over it, lies 9 cables N of Pulau Gut.

Pulau Tokong Bahara, a bare rock 57 m (187 ft) high, lies 6½ miles W of Pulau Gut. There are two detached rocks, 2 m and ½ m (6 and 2 ft) high, 3 cables NNW of the islet; otherwise the islet is steep-to.

3.55

Pulau Burong (2° 47′ N, 103° 58′ E), 10 miles W of Pulau Tumuk (3.44), is a group of three rocky islets; the N and largest being 53 m (174 ft) high. The other two islets lie close together 1½ cables S and are 40 and 31 m (131 and 102 ft) high.

3.56

Pulau Sepoi (2° 54′ N, 104° 03′ E) is a rocky islet with an elevation of 73 m (240 ft) to the tops of the trees which cover the summit, lying 9 miles NE of Pulau Burong. **Pulau Labas,** a bare rock 19 m (62 ft) high, lies 1 mile SE of Pulau Sepoi. Between these two islets there is a comparatively shallow bank with a depth of 10·1 m (33 ft), 2 cables SE of Pulau Sepoi. **Karang Tohor,** a shoal with a depth of 14·0 m (46 ft) over it, lies 1½ miles SW of Pulau Labas.

Pulau Tulai lies 3 miles NW of Pulau Tioman. It is densely wooded and has several summits, the highest of which is situated at the SE end of the island and has an elevation of 123 m (404 ft) to the tops of the trees. Two above-water rocks lie off the S side of the island, the W of these being 7 m (23 ft) high and the E rock 12 m (39 ft) high. There is a sheltered bay on the W side of the island which provides anchorage for small craft, but there is little swinging room and the depths shoal very steeply. At the head of the bay there is a mangrove swamp, with low-lying land behind it, which nearly divides the island in two.

3.57

Pulau Chebeh (2° 56′ N, 104° 06′ E), 8 miles N of Pulau Tulai, is steep-to and rocky with a few trees on it, and has an elevation of 72 m (236 ft). A **light** is exhibited from a white metal framework tower, 7 m in height, situated on the NE point of the island.

Magicienne Rock, with a depth of 8·2 m (27 ft) over it, lies on a bank situated 2 miles E of Pulau Tulai and 1¾ miles NW of Pulau Tioman. This bank, with depths of less than 20 m (11 fm) over it, rises very abruptly from deep water and is about 1 mile in extent.

3.58

Submarine exercise areas; see 3.2a.

BLAIR HARBOUR TO KUALA PAHANG

3.59

Kuala Endau (2° 40′ N, 103° 39′ E) is entered NW of **Tanjong Kempit,** situated 6½ miles WNW of Tanjong Penyabong (3.28). It is obstructed by a bar, with depths of 0·9 to 1·5 m (3 to 5 ft) over it, which extends 1½ miles offshore. The bar can be crossed at most states of the tide, but local knowledge is necessary. The river can be navigated by motor launches for a distance of 40 miles upstream.

Sungai Endau forms part of the boundary between the states of Johor and Pahang.

The channel is marked by **beacons** surmounted by cylindrical drums, the outer ones white and the inner ones red. A **light** is exhibited from one of the beacons situated on the S side of the river entrance, on the edge of the drying flat 9 cables W of Tanjong Kempit.

A **light** is exhibited from a white metal framework tower, which is difficult to identify from seaward, situated on the S entrance point of the river 1½ miles W of Tanjong Kempit.

Both banks of the river are thickly wooded, where not cleared, and during the rainy season the right bank is generally under water.

Padang Endau is a small town standing on the right bank of the river 1 mile within the entrance; there are two jetties.

Padang Endau is connected by road with Mersing (3.22) and Kuala Pontian (3.61). There are ferry ramps on each side of the river.

A **submarine cable** is laid across the river on a line joining the two ferry ramps; the landing places are marked by beacons, and vessels are prohibited from anchoring within a distance of 55 m on either side of it.

Anchorage may be obtained in 13 to 17 m (43 to 56 ft), mud, 5¼ miles NE of Kuala Endau. Locally produced iron ore and tin ore is loaded from 150 ton lighters.

3.60

Robb Shoals (2° 43′ N, 103° 39′ E), an extensive rocky patch with a least depth of 2·4 m (8 ft) over it, lie in the N approach to Kuala Endau with their shallowest part 3¼ miles N to the light-structure.

Boya Rock, ½ m (1 ft) high, lies 3 miles offshore and 5 miles NW of Kuala Endau. A rock, with a depth of 4·3 m (14 ft) over it, lies close SSE of Boya Rock.

Pulau Duchong Darat, 35 m (115 ft) high to the tops of the trees, lies ½ mile offshore and 7 miles NW of Kuala Endau. A rock, which dries 1·2 m (4 ft) lies 1¼ miles SE of Pulau Duchong Darat.

Pulau Duchong Laut, 43 m (141 ft) high to the tops of the trees, lies ¾ mile N of Pulau Duchong Darat; some drying rocks lie NE of it.

Kuala Rompin

3.61

Kuala Pontian (2° 46′ N, 103° 32′ E) forms part of the port of **Kuala Rompin.** The entrance to Sungai Pontian is obstructed by a drying bar, and some posts stand on the drying bank on the E side of the entrance to the river. **Pontian,** a fishing village, stands on the right bank of the river; there is a jetty, with a depth of 1·8 m at its head, situated a short distance up river from the main part of the village.

Chart 1394

3.62

The mouth of **Sungai Rompin** (2° 49′ N, 103° 29′ E), which lies 4 miles NW of Kuala Pontian, is fronted by a bar with a least depth of 1·1 m (3½ ft) over it in 1970.

An extensive bank which dries 0·3 to 0·9 m (1 to 3 ft) extends 5½ cables ENE from **Tanjong Tengku,** the N

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entrance point of the river and forms the N limit of the approach channel.

Another bank which dries 1·6 m (5 ft) extends 4 cables NE of **Tanjong Sa-ratus,** the S entrance point of Sungai Rompin. A patch which dries 0·3 m (1 ft) lies 4½ cables NNE of Tanjong Sa-ratus on the S side of the approach channel.

A radio tower, marked by an air obstruction light, stands on Tanjong Tengku.

Two **beacons** (white; triangular topmark) stand on the shore ¾ cable N and 6 cables NNW, respectively, of the radio tower on Tanjong Tengku.

A pair of **leading beacons,** 6 cables WSW of Tanjong Sa-ratus, mark a line across the bar, but in 1970 this line did not follow the deepest part of the channel; the beacons are unlikely to be moved as the port is now little used except by fishing craft.

No attempt should be made to enter the river without local knowledge, as changes occur with every monsoon. During the NE Monsoon passage across the bar is often risky, even for small craft. A sharp lookout must be kept for water-logged tree trunks which are commonly met on the bar and in the river.

3.63

Within the river, an extensive bank which dries 2·0 m (6½ ft) in places, extends E towards the town of **Kuala Rompin** from the S end of Tanjong Tengku and forms the N bank of the river. Depths of 2·2 m (7 ft) exist in the narrow approach channel to the town and for some distance up river.

Three jetties, with depths of 2 m (6½ ft) alongside, are situated close inside the river entrance on the N bank. At Kuala Rompin there is a short concrete jetty with a depth of 1·8 m (6 ft) alongside. A drying mud-bank lies close N of the jetty.

A submarine cable, each end of which is marked by a beacon, is laid from the town in a NNW direction to the opposite bank.

In 1970 dried fish and hardwood were exported; exports of iron ore have now ceased.

Supplies. Limited quantities of fresh water can be obtained at the town jetty. Limited quantities of fresh provisions are available.

Communications. A passenger ferry service runs from Kuala Rompin to Tanjong Tengku.

Sungai Rompin is navigable by small craft for 140 miles. The wires of a floating bridge, 8 miles up river form an obstruction but they can be slackened if the ferry sentry is notified.

Chart 769

3.64

Port limits. The limits of the port of Kuala Rompin, which includes Kuala Pontian (3.61) are comprised between latitudes 2° 45′ N and 2° 53′·4 N, and W of meridian 103° 36′·8 E. Vessels intending to work cargo *via* Kuala Pontian should obtain **anchorage** within these limits, S of the latitude of the radio tower on Tanjong Tongku; vessels intending to work cargo *via* Kuala Rompin should do so within the limits N of the latitude of the radio tower.

KUALA ROMPIN TO KUALA PAHANG

3.65

The coast from Sungai Rompin to Sungai Pahang, 42 miles N, is regular and low, and consists of a series of long sandy beaches, fringed by a line of casuarina trees and backed by flat jungle country; settlements are distinguished by the coconut palms which surround them. During, and for some weeks after, the NE Monsoon, there is considerable swell along this coast, making landing on the beaches difficult. Erosion and accretion takes place continuously all along this coast.

A **light** is exhibited from a metal framework tower, 33 m in height, situated on the coast 5¼ miles NNW of Kuala Rompin.

3.66

Kuala Merchong (3° 01′ N, 103° 26′ E), 12 miles NNW of Kuala Rompin, is narrow and shallow, being encumbered by a bar which dries 0·6 m (2 ft); it is only suitable for boats. The fishing village of **Merchong,** in which there are a few shops and a police station is situated close SW of the entrance. A ferry for small vehicles crosses the river 1 mile above the village.

A **light** for the use of fishermen, is exhibited from a white metal framework tower, 8 m in height, situated at **Kuala Pandan,** 4 miles N of Kuala Merchong.

3.67

Margaret Shoal, 13½ miles long N and S, and ½ to 1 mile in width, fronts the coast 4 miles E of Merchong. There are general depths of less than 5 m (16 ft) over it and a least depth of 1·5 m (5 ft) near its S end.

3.68

Kuala Bebar is situated 5 miles N of Kuala Merchong. **Sungai Bebar,** which can be navigated at high water, enters the sea from within a sandy spit, lying parallel with the coast; there is a least depth of 0·3 m (1 ft) on the bar.

Nenasi Light-structure is a white wooden framework tower, with a white circular daymark, situated on the coast 1½ miles N of Kuala Bebar.

Kampong Nenasi is a fairly large fishing settlement situated on the N bank of Sungai Bebar near the light-structure; it contains a number of shops, a post office, a custom house and a police station. There is good sheltered landing at Kampong Nenasi and a ferry for small vehicles crosses the river.

3.69

Tanjong Batu, close to which is a wooded hill, rises to an elevation of 42 m (138 ft) and is situated 4 miles N of Nenasi Light-structure, at the entrance to a small creek. A group of buildings stands near a beach 4½ miles N of Tanjong Batu.

3.70

Pulau Varella, formerly **Berhala** (3° 15′ N, 103° 40′ E), a steep-sided wooded rocky islet 24 m (79 ft) high and about 40 m in diameter, lies 13 miles ENE of Tanjong Batu; a ledge of rocks 0·3 m (1 ft) high, over which the sea breaks in bad weather, extends 3½ cables NNE from the islet.

Jubilee Shoal, a steep-to coral patch with a depth of 8·8 m (29 ft) over it, lies 9 miles E of Pulau Varella. Between the islet and this shoal there are depths of 20 to 25 m (11 to 14 fm), sand and mud.

Bell Shoal, with a depth of 15·8 m (52 ft) over it, lies 18 miles NNE of Pulau Varella; **Tucker Shoals,** a number of detached shoals with a least depth of 12·8 m (42 ft) over them, extend 10 miles SSE from Bell Shoal.

3.71

Between Tanjong Batu (3° 12′ N, 103° 27′ E) and Kuala Pahang, 20 miles N, the coast continues N and consists mainly of sandy beaches through which a few streams discharge into the sea.

Kuala Miang is situated 11½ miles N of Tanjong Batu.

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Charts 769, 1394

3.72

Wardlaw Shoals, consisting of patches of coral rising steeply from the bottom, with a least known depth of 1·2 m (4 ft) over them, lie 5 miles S of Kuala Pahang and 2½ miles offshore.

The coast from abreast Wardlaw Shoals to Kuala Pahang is densely wooded; in 1950 erosion was taking place on this stretch of coast.

Cardno Shoals, with a least depth of 8·2 m (27 ft), lie 3 miles ENE of Wardlaw Shoals, and **Bass Shoals,** with several heads with depths from 9·8 to 10·7 m (32 to 35 ft) over them, lie 4½ miles NE of Cardno Shoals and 6 miles E of Kuala Pahang.

Chart 1394

Kuala Pahang

3.73

Kuala Pahang is entered between **Tanjong Agas** (3° 30′ N, 103° 29′ E), 18 miles N of Tanjong Batu, and a point 1¾ miles N. **Pulau Syed Hassan** lies in the middle of the entrance. The entrance S of Pulau Syed Hassan is obstructed by drying sandbanks which extend 1 mile offshore and a considerable distance S, it is only used by local fishermen. There is a least depth of 0·3 m (1 ft) over the bar.

The entrance N of Pulau Syed Hassan is also obstructed by a bar, which lies ½ mile outside the entrance, and over which there is a least depth of 0·9 m (3 ft). There are drying sandbanks extending seaward from each side of the entrance.

Kuala Pahang Light (3° 32′ N, 103° 28′ E) is exhibited from a white metal framework tower with a white square daymark, situated close N of the N entrance point of the river. A white flagstaff stands 1½ cables SW of the light-structure.

It is inadvisable for vessels to enter Sungai Pahang without local knowledge, since the sandbanks, and also the E coast of Pulau Syed Hassan are subject to change after each NE Monsoon. Inside, the river is shallow and the banks are constantly changing; local knowledge is therefore essential.

Tidal streams in the approach to Sungai Pahang are weak.

Anchorage outside the bar may be obtained in a depth of 8 m (26 ft), mud and sand, 1 mile NE of the light-structure.

Kampong Kuala Pahang stands close inside the entrance on the N bank. There is a custom house, police station and postal agency. There is a ferry service to **Kampong Pekan Seberang** on the N shore 4 miles upstream.

Pekan, a town with over 1000 inhabitants, is situated on the S side of the river opposite Kampong Pekan Seberang to which it is connected by a vehicle ferry. The Sultan of Pahang normally resides in Pekan.

KUALA PAHANG TO TANJONG DUNGUN

Chart 770

3.74

The coast NW of Kuala Pahang is thickly wooded. **Batu Serandu,** a rocky patch with a least depth of 5·5 m (18 ft) over it, lies 1½ miles NE of the entrance to **Sungai Serandu,** a rivulet which enters the sea 2½ miles NW of the N entrance to Sungai Pahang.

A fishing reserve of the Sultan of Pahang extends 2½ miles from the coast in this area. Its seaward limit is marked by yellow spherical light-buoys.

3.75

Sungai Terus (Sungai Pahang Tua) (3° 37′ N, 103° 24′ E) enters the sea 6 miles NW of Kuala Pahang. The mouth of this river is blocked by a constantly changing sand-bar, but, with caution, small boats can enter at most states of the tide. **Kampong Cherok Paloh** is a small fishing village situated on the N side of the river, which can only be reached by boat down Sungai Terus or by sea.

Sungai Penor, which enters the sea 2½ miles N of Sungai Terus, has a constantly changing bar and is navigable only by boats.

The beach between Sungai Penor and Sungai Kuantan (3° 48′ N, 103° 21′ E) (3.77), 10 miles NNW, is used for motor transport except for 2 hours each side of high water.

Off-lying shoals

3.76

Current. In July 1940, 20 miles from the coast between Sungai Pahang (3.73) and Tanjong Dungun (3.99), a N current with a rate of 1¼ knots was reported.

Martin Ridge, sand and rock, extends 9 miles N from a position 6 miles NNE of Kuala Pahang, and between 6 and 10 miles offshore. It has a least depth of 6·7 m (22 ft) over it.

Haslam Shoals, fine sand and shells over rock, with a least depth of 6·7 m (22 ft) over them, lie 15 miles NE of Kuala Pahang. There are numerous heads with depths of between 9·5 and 11·0 m (31 and 36 ft) over them, within a radius of 3½ miles from the main shoal.

Clark Shoal lies between Haslam Shoals and Martin Ridge and **Herring Shoal,** with a depth of 9·1 m (30 ft) over it, lies 2 miles NNW of Clark Shoal.

Robinson Rock, Phang Shoal, Allen Shoal, Elliot, Boys, Ayres and **Asquith Shoals,** with depths from 11·0 to 18·3 m (36 to 60 ft) over them, lie between 3 miles SE and 11 miles ENE of Haslam Shoals. **Campbell Shoal,** coarse sand and rock, with a least depth of 11·0 m (39 ft) over it, lies 5 miles S of Boys Shoal.

Taylor Shoal, Harris Shoal, and **Appleby Rock,** lie, respectively, 8, 11 and 12½ miles NNW of Kuala Pahang, with least depths of 4·3, 5·5 and 4·3 m (14, 18 and 14 ft) over them.

Chart 1379

Karang Tanjong, with a least depth of 4·9 m (16 ft) over it, sand shell and shingle, lies with its shallowest part 3 miles SE of Tanjong Tembeling (3.77), and extends, with depths of less than 10 m (33 ft), for 6 miles NNE.

Sungai Kuantan

3.77

Sungai Kuantan is entered between **Tanjong Lumpur (Lumpor)** (3° 48′ N, 103° 21′ E) and **Tanjong Api,** 3½ cables E.

Tanjong Tembeling, 1¾ miles W of the river entrance, rises to an elevation of 122 m (400 ft) to the tops of the trees.

Tanjong Tembeling Light-structure is a white wooden framework tower, 6 m in height, standing on the E side, 2½ cables N of the point.

Telok Sisek lies between Tanjong Tembeling and Tanjong Api.

A prominent water tank stands on the W side of the river entrance, 3 cables S of Tanjong Lumpur. A conspicuous radio mast, marked by air obstruction lights, stands 2 miles SW of the same point.

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3.78

The channel through the coastal bank to the river entrance is subject to frequent change particularly during the NE Monsoon; leading lights, light-buoys and buoys are moved with the changes in the channel. No vessel should attempt to enter the river without local knowledge.

The outer end of the channel is marked by Outer Light-buoy (starboard hand) moored 1½ miles SE of the river entrance between Tanjong Lumpur and Tanjong Api. Inner Light-buoy (port hand) is moored ¾ mile from the river entrance.

The channel is dredged from April to September and is maintained at a depth of 0·6 m (2 ft) during this period. The port is not used from November to February.

Anchorage outside the bar, with good holding ground, may be obtained 8 cables SSE of Tanjong Tembeling in 9 m (30 ft), mud and sand.

Anchorage for ocean-going vessels is recommended 2¼ miles SE of Tanjong Tembeling in 12 m (40 ft).

Pilotage is compulsory.

3.79

Kuantan, which had a population of 23 000 in 1957, lies on the N bank of Sungai Kuantan, close within the entrance; it is the outlet for a considerable tin mining industry.

Two T-headed oil jetties are situated on the N side of the river close E and W, respectively of the entrance to **Sungai Galing Besar**. The E jetty is 10 m long with a depth of 5·5 m alongside; the W jetty is 6·7 m long with a depth of 5·8 m alongside. Both jetties can accommodate vessels up to 46 m in length with the aid of mooring posts situated on the river bank.

Marine Jetty, the main wharf is 43 m in length, and has depths of 2·1 m alongside, and of 4·9 m (16 ft) a short distance off.

A private wharf, close SW of the main wharf, has frontages of 50 and 13 m, about 10 m apart, with a depth of 3·0 m alongside. There is a travelling hand crane with a lifting capacity of 6 tons at this wharf. Heavy lifts are discharged into lighters.

Anchorage may be obtained S of Marine Jetty.

Facilities. There is a small hospital at Kuantan. Under-water repairs to boats can be carried out by beaching them, at high water springs, alongside the Habour Master's jetty, situated near the main wharf.

Supplies. Fresh water is obtainable at the main wharf. A limited quantity of fresh provisions are obtainable.

Communications. Small vessels call regularly from Singapore.

Good roads connect Kuantan with Pekan, Temerloh and Chukai, 25 miles NNE.

There is a coast radio station, and port radio station at Kuantan.

Kuantan airstrip is situated 7½ miles WSW of the town.

Sungai Kuantan to Kuantan Port

3.80

Between Tanjong Tembeling and **Tanjong Pelindong** (3° 50′ N, 103° 23′ E), 2 miles N, there are two bays, separated by **Tanjong Pelindong Tengah.**

There are several obstructions within ¾ mile of Tanjong Pelindong. A dangerous wreck marked by a light-buoy (isolated danger) lies 2 miles E of the same point.

Bukit Pelindong, 260 m high, is situated 8¾ cables W of Tanjong Pelindong. A group of radio masts, 33 m in height, stands on the summit of Bukit Pelindong. A large conspicuous radio mast, marked by air obstruction lights, 76 m in height, stands 2¼ cables E of the summit. **Bukit Beserah,** 2¼ miles NW of Tanjong Pelindong, is 365 m high.

3.81

Beserah village stands on the coast 1½ miles N of Tanjong Pelindong.

Anchorage may be obtained off the village during the SW Monsoon ¾ mile offshore in a depth of 8 m (26 ft).

Batu Balok, an above-water rock, lies 1¼ miles SE of the entrance to **Sungai Balok,** which is situated near the head of the bay 4 miles SW of Tanjong Gelang. A **light** for the use of fishing craft is exhibited from a structure at the mouth of this river.

3.82

Tanjong Gelang (3° 58′ N, 103° 26′ E), 8½ miles NNE of Tanjong Pelindong, rises to an elevation of 112 m (376 ft). **Bukit Pengorak (Pengorok),** with an elevation of 196 m (643 ft), lies 2¼ miles NW of Tanjong Gelang, and **Bukit Balok,** 229 m (751 ft) high, 6½ miles WNW of the same point; both these hills have conical summits which are easily identifiable. Tanjong Gelang airstrip is situated close N of the point.

A **light** is exhibited from a masonry tower, 6·8 m in height, painted black and white in chequers, on Tanjong Gelang.

Kuantan Port

3.83

Kuantan Port (3° 58′ N, 103° 26′ E) is situated on the N side of Tanjong Gelang. It is the only deep water port on the E side of Peninsular Malaysia and can accept vessels of 35 000 dwt and 228 m long with a draught of 11·2 m. Principal exports are palm oil and timber: imports are fertilizers, machinery, construction materials and mineral oils.

The harbour is protected by a N breakwater 1 mile long extending SE and then S from a point nearly 1 mile NNW of Tanjong Gelang Light, and by a short S breakwater. A light is exhibited from each breakwater head. Within the breakwaters there is a turning basin 500 m in diameter, with a least depth of 12·2 m.

Arrival information. ETA should be passed at least 24 hours in advance and confirmed by VHF to Port Control at least 2 hours before arrival.

Pilotage is compulsory. The boarding place is 2¼ cables E of Fairway Light-buoy. The pilot boat is painted orange with white upperworks.

The **tidal stream** sets predominantly N across the entrance to the harbour at a rate of up to 2 knots, decreasing to seaward.

A S set may be experienced after heavy weather during the NE Monsoon.

Approach. A channel 220 m wide is dredged through a ridge 1¼ miles SE of the harbour entrance: the limits of the channel are marked by light-buoys. Fairway Light-buoy (safe water) moored 3½ miles SE of Tanjong Gelang marks the entrance to the channel. The least depth in the channel is 12·6 m.

Leading lights are exhibited, each from a metal framework tower with a white triangular daymark point down, the front situated at the root of the N breakwater. In line bearing 311° they lead along the approach channel and into the harbour. A red aircraft warning light is exhibited from the top of the rear light-beacon.

Anchorages for vessels of up to 13 m draught are situated NE and SW of the approach channel. The

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holding ground is good, mud and sand, but they are exposed to NE Monsoon.

Berths. Nos 1 to 4 berths on the S side of a basin in the W part of the harbour are general cargo berths; Nos 1, 2 and 3 are 175 m long and No 4, which can also handle containers, is 250 m long. The maximum draught at these berths is 11·2 m.

A jetty on the S side of the entrance to the basin has berths for loading palm oil: the outer berth is 210 m long for a vessel with 11·2 m draught, the inner berth is 120 m long for a vessel with 10·0 m draught.

A mineral oil berth in a basin on the N side of the harbour can accommodate a vessel with a draught of 8 m.

A Ro-Ro berth is under construction (1985).

Facilities. There are two tugs, each of 2800 hp. Cranes of up to 90 tons capacity are available.

Repairs cannot be carried out.

Deratting can be carried out: see 1.92.

Supplies. Fresh water is laid on to the quays.

Provisions are available from Kuantan.

Fuel is not available.

The Harbour Master's office, a conspicuous white and yellow six-storey building, is situated 3¾ cables WNW of the S breakwater head. The port control is on the top floor and there is a port radio station.

Port Authority. Kuantan Port Authority, PO Box 161, Kuantan.

Off-lying shoals and dangers

3.84

Dampier Shoal, with a depth of 6·4 m over it, lies 5¾ miles NE of Tanjong Tembeling (3.77) off the N end of **Karang Tanjong,** and may have less water over it. Other shallow patches have been reported in this vicinity.

Stork Rock, with 10·7 m (35 ft) over it, lies 3½ miles E of Dampier Shoal, and **Skua Shoal,** with a depth of 10·4 m (34 ft) over it, lies 2¾ miles NNE of Dampier Shoal.

Snipe Shoal (3° 51′ N, 103° 36′ E), with 14·9 m (49 ft) over it, lies 5½ miles E of Stork Rock, with **Penguin Shoal,** over which there is a depth of 18·0 m (58 ft), 9 miles farther ENE. **Shearwater Shoal** with a depth of 16·1 m (53 ft) over it, lies 4¾ miles NW of Snipe Shoal.

Beting Gebeng (Gebing), with a least depth of 3·6 m, sand, lies on a shallow ridge 2¼ miles NE of Tanjong Gelang.

Chart 770

Kuantan Port to Tanjong Berhala

3.85

Telok Bagin is entered between Tanjong Gelang and Tanjong Geliga (4° 10′ N, 103° 27′ E) 12½ miles N. The coast consists of two sandy beaches divided by the adjacent promontories of **Tanjong Cherating** and **Tanjong Batu (Batu Pak Mok),** 10 miles N of Tanjong Gelang. Along the beach S of Tanjong Cherating the foreshore is low and featureless, backed by coconut palms and occasional casuarinas. Inland there is jungle cleared in places for cultivation. The beach N of Tanjong Batu is similar with the addition of deciduous trees.

Sungai Ular enters the sea 6 miles N of Tanjong Gelang. The large fishing village of **Kampong Sungai Ular** is situated on the S bank of the river, with a few huts on the N bank. **Pulau Ular,** 15 m (49 ft) high, with the small islet **Pulau Lang** close SE of it, lies ¾ mile off the river mouth. Drying rocks surround these islands and extend 4 cables NE.

Sungai Cherating enters the sea ¾ mile WSW of Tanjong Cherating. **Kampong Cherating,** a large fishing village, lies between its E bank and Tanjong Cherating. **Bukit Cherating,** 97 m (318 ft) high, lies close NW of Tanjong Batu.

An area, in which anchoring is prohibited owing to the existence of submarine cables, extends E from the vicinity of Tanjong Cherating.

Tanjong Geliga rises to an elevation of 92 m (302 ft) ¾ mile N and is densely wooded. **Bukit Geliga Besar,** 276 m high, lies close N of the point.

Chart 1397

3.86

The coast N of Tanjong Geliga (4° 10′ N, 103° 27′ E) for a distance of 3 miles, consists of two sandy beaches, divided by **Tanjong Geliga Kechil,** small rocky promontory, 2 miles N of Tanjong Geliga. Along these beaches, the foreshore is low and featureless, backed by coconut palms; inland there is jungle cleared in places for cultivation. **Bukit Geliga Che Akob,** visible from seaward, is situated 4 cables SW of Tanjong Geliga Kechil and ¼ mile inland; it is covered with jungle and rises to an elevation of 102 m (335 ft) to the tops of the trees.

3.87

The entrance to **Sungai Kemaman** is situated close W of **Tanjong Mat Amin** (4° 14′ N, 103° 27′ E); it is well marked by two pairs of leading light-beacons and the channel inside by light-beacons. Depths on the bar are liable to change, although it can be crossed at all states of the tide by boats. Local knowledge is required at low water, and it is impassable when a heavy swell is running. Vessels with a draught of 2·4 m, with local knowledge, can enter the river.

Tanjong Mat Amin Light-structure is a white and red masonry tower, 9 m in height, situated on the summit of the point.

Karang Tenok and **Karang Kechil,** each with a least depth of 6·1 m (20 ft) over it, lie 2½ and 2 miles, respectively, SE of Tanjong Mat Amin Light-structure.

Batu Pejajat is a rocky spur joined to the mainland lying close SW of Tanjong Mat Amin Light-structure.

A stranded wreck marked by a light-buoy (N cardinal) lies 3 cables S of Batu Pejajat.

Leading light-beacons (white wooden framework towers, white diamond tompark) stand ½ W of Batu Pejajat: they are moved as necessary to lead in the best water over the bar.

The inner part of the entrance channel is marked by **leading light-beacons** (white wooden framework tower, white rectangular topmark) 5½ cables NE of the outer pair of leading light-beacons: they are also moved as necessary.

Within the entrance, the channel is marked by two light-beacons which stand 3 cables NNE of the jetty at Chukai.

3.88

The town of **Chukai** is situated on the SW bank, 2 miles within the entrance of Sungai Kemaman; it is one of the principal ports of Terengganu. After crossing the bar, boats can reach Chukai at all states of the tide. Iron ore is exported through Chukai by lighters to ships at anchor outside the river entrance.

The usual **anchorage** is in 18 m (59 ft) 3 miles E of the entrance, or in 13 m (43 ft) ¾ mile SE of Tanjong Mat Amin, the E entrance point, bearing 305°.

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During the NE Monsoon the working of cargo by lighters is often impracticable.

There is a small T-headed jetty, with a length of 30 m and a depth of 1·8 m alongside, at Chukai, suitable for berthing small vessels.

Facilities. There is a small hospital in Chukai.

3.89

Kampong Kemaman is a large fishing village situated on the S entrance point of Sungai Kemaman. A wooden pier, which in 1960 was in a bad state of repair and only suitable for boats, is situated there.

3.90

Tanjong Berhala (4° 15′ N, 103° 28′ E), lying 1½ miles NE of Tanjong Mat Amin, is a low promontory. Inland, the land rises gradually to a range of jungle-covered hills 134 m (440 ft) high.

3.90a

Tanjong Berhala Harbour (Port of Kuala Kemaman) is situated between **Tanjong Sulong,** close NE of Tanjong Mat Amin, and Tanjong Berhala. It is protected on the E side by North Breakwater which extends 4 cables SSW from Tanjong Berhala and by East Breakwater which extends a further 2½ cables SE; and on the S side by South Breakwater extending 3 cables E from Tanjong Sulong, thence 4½ cables N.

No 5 Light-beacon stands on the head of North Breakwater, No 11 Light-beacon on the head of East Breakwater and No 6 Light-beacon on the head of South Breakwater.

A bank with depths of less than 11 m extends 4 cables SSE from the head of East Breakwater. A rock with a depth of 4·9 m over it, whose charted position is approximate, lies about 2 cables N of the S extremity of the bank.

The **approach channel,** 15·8 m deep, leads from a position 2 miles SSE of Tanjong Berhala through the harbour entrance between Nos 5 and 6 Light-beacons to a turning basin off the wharves. The channel is marked by light-beacons and a light-buoy (port and starboard hand).

Leading lights lead along the channel into the harbour. The first pair exhibited from Nos 8 and 10 Light-beacons on the W side of the harbour bear 310° in line and the second pair exhibited from Nos 7 and 9 Light-beacons on the NW side bear 327½° in line.

Wharves. East Wharf on the W side of North Breakwater, 630 m long with depths of 19·8 m alongside, accommodates vessels of up to 220 000 dwt.

At Kemaman Oil Supply Base on the N side of the harbour there is a wharf 360 m long with depths of 9 m alongside.

LPG Jetty in the SW part of the harbour can accommodate a tanker of 40 000 dwt.

Anchorages. The Supply Vessel Anchorage is situated NE of the approach channel 1½ miles SE of Tanjong Berhala.

The Quarantine Anchorage and Deep Draught Anchorage are situated NE of the approach channel 4½ miles and 5½ miles respectively SE of Tanjong Berhala.

The Petroleum Anchorage is situated SW of the approach channel 5 miles SE of Tanjong Mat Amin.

Facilities. Deratting exemption certificates can be issued: see 1.92.

Chart 770

Tanjong Berhala to Kuala Kerteh

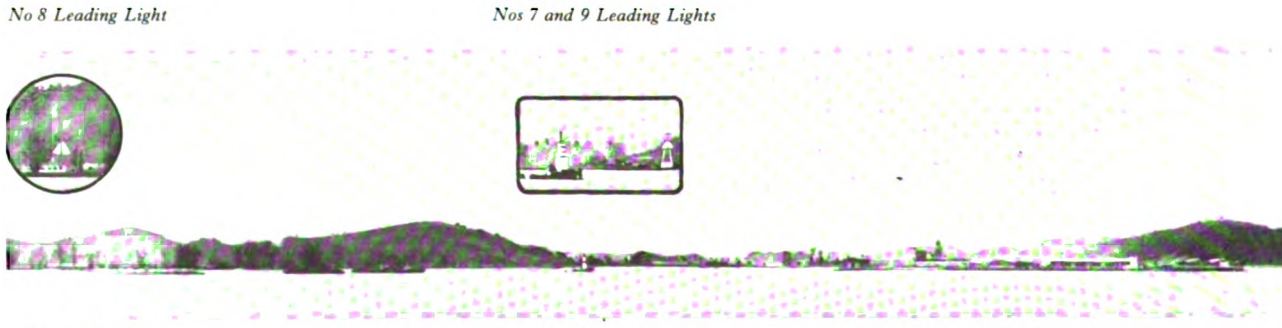
3.91

Between Tanjong Berhala and **Tanjong Kalong,** 1 mile N, the coast is indented by two small sandy bays; close inland between these points is a range of hills 131 m (430 ft) high and covered with jungle. Between Tanjong Kalong and **Tanjong Penunjok** (4° 20′ N,

(3.90a.1) Tanjong Berhala Harbour Approach from SE

(Original dated 1986)

(Photograph by Sepakat Setia Perunding (SDN)BDH)


No 8 Leading Light
Nos 7 and 9 Leading Lights
Leading Lights in line bearing 310°
Leading Lights in line bearing 327½°
Supply Base

(3.90a.2) Tanjong Berhala Harbour from SE

(Original dated 1986)

(Photograph by Sepakat Setia Perunding (SDN)BDH)

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103° 30′ E) there are several coves. Several rocks, with depths of less than 2 m (6 ft) over them, lie close offshore S of **Tanjong Senajong,** situated 1¼ miles S of Tanjong Penunjok.

Bukit Gemok, 174 m (571 ft) high is situated at the S end of a jungle covered range of hills close inland 1 mile N of Tanjong Kalong.

Two radio towers, exhibiting air obstruction lights, stand on **Bukit Kijal** at an elevation of 335 m (1099 ft) 1¾ miles SW of Tanjong Penunjok; these obstruction lights are visible for a considerable distance from NE and SE, but cannot be seen from E.

Beting Karang Baharu (Baru), with a least depth of 10·7 m (35 ft) over it, lies 3½ miles SE of Tanjong Penunjok.

3.92

Between Tanjong Penunjok and Tanjong Labohan (4° 32′ N, 103° 28′ E) (3.96), 11½ miles N, there are two sandy bays separated by Sungai Kemasik (3.93) which enters the sea 5½ miles N of Tanjong Penunjok. The foreshore is generally low and featureless, backed by coconut palms, casuarinas and deciduous trees; inland there is jungle, cleared in places for cultivation. See view on chart 770.

Sungai Kijal enters the sea 1¾ miles NW of Tanjong Penunjok. **Kampong Kijal,** a large fishing village, is situated on the coast ¾ mile NW of Tanjong Penunjok.

A fishing **light** is exhibited from a white structure situated ½ mile NW of Tanjong Penunjok, and a **beacon** (white wooden framework tower; diamond topmark) stands in Kampong Kijal, 4 cables NW.

There is an airstrip situated near the coast midway between Tanjong Penunjok and Kampong Kijal.

Bukit Panjang, 228 m (748 ft) high, lies 3½ miles NW of Tanjong Penunjok; it is heavily wooded.

3.93

Kemasik (4° 25′ N, 103° 27′ E), a large fishing village, is situated on the coast close N of **Sungai Kemasik.** A fishing **light** is exhibited from a white structure, 8 m in height, situated in the village.

The 1½ mile stretch of coast immediately S of Sungai Kemasik is rocky with several small coves, backed by a low range of heavily wooded hills.

Batu Bau, with a depth of 7·6 m (25 ft) over it, lies 13 cables E of Kemasik.

Bukit Harimau Menangis, with an elevation of 204 m (669 ft) is situated 1½ miles WSW of Kemasik, and **Bukit Palus,** 226 m (741 ft) high, lies 2½ miles NW of Kemasik; both are heavily wooded.

Chart 1374

Approaches to Kuala Kerteh

3.94

A steep hill, 46 m (151 ft) high, lies on the coast close N of Kemasik. Between this hill and **Kuala Kerteh** (4° 31′ N, 103° 28′ E), 5 miles N the coast is sandy and backed by coconut plantations. The small village of Kerteh lies 4 cables within the entrance on the S side of **Sungai Kerteh.**

Anchorage may be obtained in any suitable depth E of Kuala Kerteh; the bottom is sand and shell and affords good holding ground. In the entrance to the river, the channel dries 0·3 m (1 ft). Boatwork is often difficult, and it is always advisable to use a rowing boat near the time of low water.

Charts 1374, 770

Off-lying banks

3.95

Caslon Bank, with a least depth of 13·7 m (45 ft) over it, lies 5 miles SE of Tanjong Labohan with **Selok Liat,** over which there is a least depth of 13·7 m (45 ft) 3 miles farther SE. **Winkworth Bank,** with a least depth of 15·2 m (50 ft) over it, and **Paton Bank,** with a least depth of 15·5 m (51 ft) over it, lie 3½ miles SE and 3 miles NE, respectively, of Tanjong Labohan. These three banks consist of coarse sand and are very steep-to on their seaward side.

Paton Bank Light-buoy (port hand) is moored 7 cables NE of the bank.

3.96

The coast between Kuala Kerteh and **Tanjong Labohan** (4° 32′ N, 103° 28′ E) forms a rocky promontory, rising to **Bukit Labohan,** 378 m (1240 ft) high and heavily wooded, which is prominent from seaward. A **light** is exhibited from a white metal framework tower, 6 m in height, situated 3½ cables NNE of Tanjong Labohan.

Kuala Kerteh to Tanjong Dungun

3.97

Between Tanjong Labohan and **Tanjong Batu Lata,** 3 miles N, the coast is rocky and backed by jungle.

Kerteh Terminal

3.97a

Port of Kerteh (Kerteh Terminal) is situated in the vicinity of Tanjong Batu Lata and consists of three offshore tanker moorings and Kerteh Port Marine Control on shore.

Vessels intending to berth at the terminal should signal ETA 72 hours, 48 hours and 24 hours in advance. Kerteh Port Marine Control should be contacted on VHF as soon as the vessel is within range.

Sea Light-buoy is moored 6 miles ESE of Tanjong Batu Lata.

The anchorage area is 2 miles square centred 1½ miles SW of Sea Light-buoy. Anchoring elsewhere in the area is prohibited owing to the existence of submarine pipelines and cables. The holding ground is poor.

A restricted area extending 4 miles offshore encloses the terminal. Vessels may not enter the area unless a mooring master is on board.

Mooring masters normally embark in the anchorage but during the NE Monsoon they may embank off Tanjong Berhala (3.90).

Nos 1 and 2 Single Anchor Leg Moorings (SALM) lie 2¼ miles ENE and 2½ miles E respectively of Tanjong Batu Lata. Each is yellow with black stripes and carries a light and a fog signal. Tankers between 40 000 dwt and 250 000 dwt can berth at them to load crude oil. The maximum loaded draught is 17·4 m (57 ft) at SALM No 1 and 20·4 m (67 ft) at SALM No 2.

A Single Point Mooring (SPM) lies 1¼ miles NE of Tanjong Batu Lata. It is orange and carries a light and fog signal. A tanker between 15 000 dwt and 85 000 dwt can berth there to load petroleum products from a refinery ashore to a maximum draught of 11·1 m (36 ft).

Danger line light-buoys are moored on the 15 m (50 ft) depth contour inshore of the moorings for the benefit of deep draught tankers berthing there.

A light is exhibited from Port Kerteh Marine Control Tower, a metal framework tower 35 m in height, 5 cables NNW of Tanjong Batu Lata. The tower is equipped with radar.

A Vessel Traffic Management System provides vessels with advice on navigation and shipping movements, and weather and tidal information.

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Pipelines are laid ENE from the terminal to Tapis Oilfield and Sotong Collector Platform (3.103).

Tugs are available.

There are no facilities.

Currents. During the NE Monsoon the current normally runs S at a rate of ½ to 1 knot: when winds are strong the rate may reach 2 knots or more. In combination with a flood stream the rate may reach 3 knots.

During the SW Monsoon the current runs N but less strongly.

Chart 770

3.97b

A light is exhibited from a yellow beacon 2¼ miles NNW of Tanjong Batu Lata. It marks the cooling water intake at Paka power station.

Tanjong Pilor (Pelor) lies 5½ miles N of Tanjong Batu Lata, and between these two points the coast is sandy, backed by coconut palms, casuarinas and deciduous trees. Inland there is jungle, cleared in places for cultivation. See view on chart 770.

Kuala Paka fishing light is exhibited from a white structure, 9 m in height, situated ¾ mile SW of Tanjong Pilor.

Sungai Paka enters the sea close SW of Tanjong Pilor, and the fishing village of **Paka** lies on the S side of the river 1 mile from its entrance. The bar across the entrance to Sungai Paka can be crossed by motor launches 1 hour either side of high water springs, at which time there is a depth of 1·5 m (5 ft) over it. Launches can proceed to **Kampong Rasau** 20 miles upstream, during the period between high water and 3 hours afterwards, but it is advisable to take a pilot. A ferry crosses the river at Paka.

Anchorage can be obtained off Paka village in a depth of 4 m (13 ft).

Bukit Beril, with an elevation of 163 fm (535 ft), lies 2½ miles SW of Tanjong Pilor, and is heavily wooded.

3.98

Between Tanjong Pilor (4° 39′ N, 103° 27′ E) and **Tanjong Gadong,** 2½ miles N, the coast is rocky, with several small sandy coves. A high range of hills, which is densely wooded and abrupt, extends 4 miles NW from Tanjong Pilor; its summit, **Bukit Bauk,** with an elevation of 473 m (1552 ft) is conspicuous. **Sungai Sura** enters the sea close N of Tanjong Gadong.

Between Tanjong Gadong and Tanjong Dungun, 5½ miles N, the coast is sandy, backed by coconut palms extending to Kuala Dungun. A range of hills, which attains an elevation of 158 m (518 ft), is situated 2½ miles inland. See view on chart 770.

Chart 1397

Sungai Dungun

3.99

Sungai Dungun is entered close W of **Tanjong Dungun** (4° 47′ N, 103° 26′ E).

A **light** is exhibited from a metal framework tower situated on the highest point of Tanjong Dungun. Two **beacons** (white triangle topmark) are situated on the point.

Pilotage inwards is compulsory for ore-loaders anchoring off Sura Jetty.

Directions. There are no navigational aids for passage over the bar into Kuala Dungun, but the best approach is on a NW course steering to pass midway between the SW part of Tanjong Dungun and the W entrance point of Sungai Dungun. The sandbanks over the bar and in the entrance are liable to frequent change.

Within the river the channels are indicated by pairs of **leading beacons** which are moved according to changes in the channel.

Coastal vessels of less than 200 tons and with a draught up to 2·0 m can cross the bar; vessels of up to 500 tons and 2·7 m draught may enter at spring tides.

Boatwork is difficult over the outer part of the bar and on the out-going stream a SE wind causes a confused sea. Navigation by boat is possible for several miles up the river, but local knowledge is necessary to avoid the many mud-banks.

3.100

Sura Jetty from which iron ore is exported, is situated 1½ miles S of the W entrance point of Sungai Dungun, but it can only be used in calm weather. Numerous mooring buoys for lighters are situated 3 cables off the jetty and off the resthouse 6 cables farther NNW.

Bukit Pak Sabah lies inland from the coast 1 mile WNW from Sura Jetty. A beacon (white; rectangular topmark) stands on the SE slope of this hill, and is used as a rear mark by vessels berthing at the jetty.

Anchorage with good holding ground, for small craft, can be obtained 9½ cables SSW of Tanjong Dungun, in a depth of 7 m (23 ft). A mooring buoy lies in the approach to the river mouth 3½ cables S of Tanjong Dungun.

3.101

Kuala Dungun, which in 1962 had a population of 15 000, serves both the community at the port and the iron ore mines at **Bukit Besi,** 19 miles inland, to which it is connected by a light railway. Ore-carriers of over 35 000 tons deadweight use the port anchoring 1 to 1½ miles E of Sura Jetty in 11 to 13 m (36 to 43 ft), soft mud and sand, and the iron ore is ferried out in lighters from the jetty. Owing to lack of shelter however, shipment is only possible during the SW Monsoon from March to October. Nearly 3 million tons of iron ore are exported annually, mostly to Japan.

Facilities. Emergency repairs can be undertaken at expensive rates. Several lighters of 200 tons capacity and some low-powered tugs for their handling are available for working cargo. There is a small hospital. The custom house is situated on the W entrance point of the river.

Supplies. Fresh provisions can be obtained in limited quantity from local resources. Fresh water is available.

Communications. There is communication by sea with Terengganu and other ports on the coast.

TANJONG DUNGUN TO TERENGGANU

Chart 770

Off-lying islands

3.102

Pulau Tenggol (4° 48′ N, 103° 41′ E), 276 m (906 ft) high to the tops of the trees, is densely wooded and lies 14½ miles E of Tanjung Dungun. It has three main summits, the N and centre of which are each divided into two peaks. On the W side of the island is a small sandy bay in which are several below-water rocks; the coast is otherwise steep and rocky, with considerable depths off the points. The interior of the island is rocky and covered with thick jungle; numerous snakes and wild animals abound. The island is uninhabited except for a few occasional fishermen. An old tower consisting of a white framework structure, 6 m in height, is situated on the E extremity of Pulau Tenggol.

Anchorage can be obtained off the sandy bay on the W side of the island 3 cables N of its S entrance point in a depth of 47 m (26 fm); the approach to the anchorage is

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Pulau Nyireh

Pulau Tenggol bearing 215° 6 miles
(Original dated 1872)

reported to be clear of dangers. The best landing place at all states of the tide is situated close to some rocks on the beach in the NE corner of the bay; elsewhere, boats can approach within a few metres of the sandy shore at high water, but at low water are impeded by a coral reef.

Batu Tokong Daik, a bare rock 10 m (33 ft) high, lies ¾ mile S of Pulau Tenggol. The channel between this rock and Pulau Tenggol appears to be clear of dangers, and has depths of 20 m (11 fm) in the fairway.

Pulau Nyireh, which lies 2 miles NNW of Pulau Tenggol, has two summits, the N and higher having an elevation of 108 m (354 ft) to the tops of the trees with which it is covered; the coast is steep. A rock, which dries 1·8 m (6 ft), lies 1 cable NW, and a rock with a depth of 6·1 m (20 ft) over it, lies 3 cables E, respectively, from the N point of the island.

Pulau Tokong Burong, a bare rock 26 m (86 ft) high, lies 1 mile N of Pulau Nyireh and is steep-to. A small rock, 3 m (10 ft) high and another 5 m (16 ft) high, lie, respectively, 1¾ cables NW and 8 cables ESE of Pulau Tokong Burong; both rocks are steep-to.

Chart 3543

3.103

Tapis Oilfield (5° 31′ N, 105° 01′ E) consists of a group of platforms about 90 miles ENE of Pulau Tenggol. **Tapis A** platform is at the centre of the field. All platforms are enclosed within a restricted area, the extent of which can be seen from the chart, except **Semangkok** about 45 miles WNW and **Duyong** about 35 miles SSE of Tapis A.

Sotor Collector platform (4° 52′ N, 104° 50′ E) stands 41 miles SSW of Tapis A.

Oil and gas pipelines connect the platforms. An oil pipeline runs direct from Tapis A to Kerteh Terminal (3.97a): a gas pipeline runs SSW to Sotor Collector, thence WSW to Kerteh Terminal.

The restricted area should not be entered by unauthorised vessels: see 1.9a and 3.3.

Chart 2414

Kakap Natuna Oil Terminal is situated about 63 miles ESE of Tapis A platform. Export tankers berth alongside a storage tanker moored to an SPM to load. The anchorage is in position 5° 02′·9 N, 105° 58′·5 E. Pilotage is compulsory: the pilot boards in the anchorage.

Chart 770

3.104

Current. During the SW Monsoon from May to September, a current, with a rate of 3 knots, usually sets in a NNW direction between Tanjong Dungun and Pulau Tenggol (4° 49′ N, 103° 41′ E). A N to NE current may, however, be experienced. On 3rd and 8th September, 1931, the SY *Sea Belle II* experienced a NE current of from 3 to 3½ knots in this vicinity. During the NE Monsoon from October to April, the current between Tanjong Dungun and Pulau Tenggol is usually S-going.

In the vicinity of Pulau Tenggol and its off-lying islets the current attains a high rate close inshore and is most erratic both in direction and strength. In the passage between Pulau Tenggol and Pulau Nyireh there is usually an area of dead water in mid-channel. The current within 1 mile of the mainland coast is generally much weaker than in the offing.

Tanjong Dungun to Pulau Kapas

3.105

The coast between Tanjong Dungun (3.99) and **Kampong Jambu Bongkok** (4° 56′ N, 103° 21′ E), 11 miles NNW, is flat, sandy and clear of dangers. Within the coast, the land is flat with many low ranges of hills and is covered with jungle and scrub.

Tanjong Jara lies 2 miles NNW of Tanjong Dungun. A range of wooded hills, which lies 3½ miles inland on this part of the coast, terminates at its S end in **Bukit Laba,** 237 m high, 5 miles W of Tanjong Dungun. Farther inland, higher ranges of mountains may be seen.

Between Kampong Jambu Bongkok and Kuala Merang (3.110) 18½ miles NNW, the coast is similar to that described above. The only opening in the whole stretch of the coast between Tanjong Dungun and Kuala Merang is **Kuala Merchang** (5° 02′ N, 103° 18′ E).

Batu Siatin, situated 3 miles NNE of Kuala Merchang and 1½ miles offshore, consists of two rocks; the outer rock has a depth of 0·6 m (2 ft) over it and is steep-to, and the inner rock, 2 cables W of it, has a depth of 7·3 m (24 ft) over it.

Obstructions were reported in 1971 to exist 3¾ miles NNW of Batu Siatin.

Charts 770, 771

3.106

Pulau Kapas (5° 13′ N, 103° 16′ E), 124 m (408 ft) high and densely wooded, lies 3¼ miles ENE of Kuala Merang. Foul ground extends a short distance from the SW side of the island; another islet, **Pulau Gumia (Pulau Kapas Kechil),** 44 m (144 ft) high, lies 1 cable off its NW end.

A **light** is exhibited from a metal tower situated on the SW extremity of Pulau Kapas.

A shoal, with a depth of 4·9 m (16 ft) over it, lies on the bank connecting Pulau Kapas to the mainland, 5 cables W of the light-structure.

Pulau Kapas is inhabited by fishermen and is reported to afford good **anchorage** for small vessels with local knowledge during the NE Monsoon.

Sungai Merang is 12 miles in length and may be crossed by ferry at **Kampong Seberang Merang,** 1 mile above the river entrance.

Tanjong Chenering (5° 16′ N, 103° 11′ E), 5½ miles NW of Pulau Kapas with an elevation of 73 m (240 ft), is a promontory remarkable as being the only rocky headland in the vicinity.

A light is exhibited from a white metal framework tower 10 m in height on Tanjong Chenering.

In 1977 a harbour was under construction close S of Tanjong Chenering. A light is exhibited from a breakwater head 3 cables SE of the point.

Bukit Panji, 180 m high, is situated 1½ miles SW of Tanjong Chenering..

Kuala Ibai is 1¼ miles NNW of Tanjong Chenering. **Batu Barok,** which dries 2·1 m (7 ft), lies 2 cables offshore and 1½ miles NW of Kuala Ibai.

Bukit Besar attains an elevation of 202 m (663 ft) 2½ miles NW of Kuala Ibai, and is surmounted by radio masts which are marked by air obstruction lights.

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Chart 771

Terengganu

3.107

Kuala Terengganu is entered between **Tanjong Luan** (5° 20′ N, 103° 09′ E), 5 miles NW of Tanjong Chenering, and **Tanjong Takir,** 2 cables NW. **Bukit Puteri,** 30 m (98 ft) high and wooded, on which there is a fort with a flagstaff, lies 3½ cables SW of Tanjong Luan on the S side of the river.

Bukit Puteri Light-structure is a conspicuous white brick column standing close NE of the fort.

A bank extends 7 cables NE from the entrance points, forming a bar. In 1972 there was a least depth of 1·4 m (4½ ft) in the channel over the bar, but the channel is liable to change both in depth and direction. During the NE Monsoon, from November to February, it is often difficult to enter the harbour.

Fairway Light-buoy (safe water) is moored outside the bar 1¾ miles NE of Bukit Puteri Light-structure.

Anchorage outside the bar may be obtained in a depth of 9 m (30 ft), sand, with Bukit Puteri Light-structure bearing 243° distant 1½ miles, but it is exposed to winds from seaward which send in a heavy swell.

The anchorage for vessels awaiting a pilot is within 1 mile of Fairway Light-buoy.

Leading light-beacons, which form the alignment for the approach and entrance to the harbour, are moved as necessary to meet changes in the direction of the channel. The rear light of the approach alignment is Bukit Puteri Light-structure, and the front light-beacon (red and white portable metal framework tower; rectangular topmark), 6 m in height, is situated on the inner edge of the sea wall ¾ cable NE of Bukit Puteri Light-structure.

The front light is withdrawn for the duration of the NE Monsoon (December to May).

The rear light-beacon of the inner alignment (wooden tower, rectangular topmark), 9 m in height, is situated ¾ mile WNW of Bukit Puteri Light-structure, and the front light-beacon, a similar structure 6 m in height, stands on a drying bank 350 m E of the rear light-beacon. In 1972 these light-beacons in line bore 271½°.

The navigable channel within the bar is marked by eight navigational buoys.

Depths in the inner channel decrease from 9·0 m (29½ ft) in the entrance to the river to less than 2·0 m (6½ ft) above the inner pair of navigational buoys.

Tidal streams. Strong eddies and sets may be experienced in the inner harbour except at slack water, and the channels are liable to sudden change.

Directions. Mariners are advised not to enter the port or move in the inner harbour without engaging a pilot.

Two drying rocks, each marked by a beacon (white spherical topmark) lie close off the town. The outer rock, on which there are two more beacons, dries 0·9 m (3 ft), and the inner rock dries 0·2 m (1 ft).

Good **anchorage** for small vessels with local knowledge may be obtained just within the entrance in a depth of 4 m (13 ft).

Anchorage is prohibited between the town and Tanjong Takir on a line whose ends are marked by beacons. Anchorage is also prohibited on a line marked by sign boards at each end, between which a pipeline is laid, from a position on the shore SW of Bukit Puteri Light-structure to **Pulau Duyong Besar,** 3 cables W.

3.108

Terengganu, which, in 1972, had a population of 174 000, is the seat of Government of the State of Terengganu.

There is a landing jetty at the town, which is equipped with two hand cranes, each with a lifting capacity of 2 tons. This jetty can be used by craft drawing not more than 0·6 m (2 ft) at high water; at low water it dries out for a distance of from 2 to 3 m. Four small private jetties, with depths of 3·7 m alongside, are situated between the town and 1½ miles upstream.

The Menteri Besar's residence has a grey roof and flagstaff and is situated 14 cables SE of Tanjong Luan; some houses W have prominent red roofs.

Facilities. There is a hospital in the town.

Supplies. Fresh provisions are available. Diesel fuel and petrol can be supplied by road tanker to two of the private jetties, and fresh water is laid on to one of them.

Communications. There is regular communication by sea with Singapore, and by road with Singapore, Kuala Lumpur, 160 miles SW and Kota Baharu, 75 miles NW.

Kuala Terengganu airport is situated 3 miles NW of Tanjong Takir.

Climatic tables. See 1.131.

TERENGGANU TO TUMPAT

Terengganu to Pulau Ru

3.109

Tanjong Gelam is situated 4 miles NNW of Tanjong Takir.

Batu Rakit (5° 27′ N, 103° 03′ E), a small group of rocks ½ m (2 ft) high, lies 4½ miles NW of Tanjong Gelam and 3 cables offshore. A **light** is exhibited from a post 3 m in height on Batu Rakit. **Kampong Batu Rakit,** where there is a flagstaff, is situated on the coast abreast these rocks. This stretch of coast is low, but at Kampong Batu Rakit high land approaches the coast.

Tanjong Merang, with an elevation of 47 m (154 ft), is situated 8 miles NW of Batu Rakit. A **light** is exhibited from a white metal mast with a white square topmark, 6 m in height, situated on the point. A rock awash lies close N of Tanjong Merang and a rock, which dries 0·9 m (3 ft) lies close W of it.

Batu Rusa, two above-water rocks, the S of which is 3 m (9 ft) high and the N, 1 m (4 ft) high, lie 2½ miles ENE of Tanjong Merang. **Batu Tengah,** ½ m (2 ft) high with a rock, awash close SW of it, lies 8 cables N of Batu Rusa.

3.110

Between Tanjong Merang and **Kuala Keluang,** where there are two bluffs, 25 miles NW, the coast is low and bordered by a sandy beach. **Kuala Merang,** which gives access to Kampong Merang, lies 1½ miles W of Tanjong Merang; some rocks with depths of less than 2 m (6 ft) over them lie 5½ miles WNW of the point.

Kuala Setiu Baharu, an inlet in the coast, lies 12¼ miles NW of Tanjong Merang; a **light** is occasionally exhibited from a brown mast, 8 m in height, in the entrance to this inlet, and there is a custom house with a flagstaff 1½ miles farther NW.

A range of hills, with many peaks runs 17 miles inland and attains its greatest elevation at **Gunong Lawit (Bukit Batil),** 1517 m (4977 ft) high, 17 miles SW of Kuala Setiu Baharu.

Pulau Chipu (5° 41′ N, 102° 50′ E), a prominent islet 24 m high, and covered with coarse scrub, lies 3¾ miles NE of Kuala Setiu Baharu; shallow water surrounds this islet and a depth of 5·8 m (19 ft) exists 4 cables N of it.

Dickson Shoal, a small coral patch with a depth of 12·8 m (42 ft) over it, lies 3¼ miles SE of Pulau Chipu;

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Baker Shoal, another small coral patch with a depth of 11·3 m (37 ft) over it, lies 3½ miles N of the islet.

3.111

Pulau Ru (Rhu) (5° 50′ N, 102° 37′ E), with an elevation of 110 m (361 ft) is situated 16 miles NW of Pulau Chipu and 1½ miles offshore.

Off-lying islands

3.112

Pulau Yu Kechil, 71 m high to the tops of the trees, is the SE of a number of islets lying off this part of the coast, and lies 14 miles ENE of Tanjong Merang. **Pulau Yu Besar,** 108 m (354 ft) high to the tops of the trees, lies 1 mile NNW of Pulau Yu Kechil.

Pulau Bidong Laut (5° 37′ N, 103° 04′ E), 322 m (1056 ft) high to the tops of the trees, lies 8 miles NE of Tanjong Merang. The island is thickly wooded and has several small bays with sandy beaches on its W and SW sides. **Pulau Kapak,** thickly wooded and 66 m (217 ft) high to the tops of the trees, lies ½ mile S of Pulau Bidong Laut with a depth of 14·3 m (47 ft) in the channel between them.

Pulau Gelok, 107 m (351 ft) high to the tops of the trees, lies 1½ miles N of Pulau Bidong Laut, with **Batu Takorak,** a smaller islet 35 m (108 ft) high, ½ mile farther N. There is another islet 9 m (30 ft) high, close N of Batu Takorak.

Batu Barat, 43 m (141 ft) high, and partially wooded, lies 5½ miles WNW of Pulau Bidong Laut. Three isolated above-water rocks, the highest of which is 2 m (7 ft) high, with deep water round them, lie ¾ mile NW of Batu Barat.

Hafther Rock, with a depth of less than 2 m (6 ft) over it, lies 7 cables SE of Batu Barat on the edge of a bank with depths of less than 10 m (33 ft) over it, which extends from this islet.

3.113

Pulau Redang, 358 m (1174 ft charted as 1249 ft) high, lies 13½ miles NNE of Tanjong Merang; it is thickly wooded, uninhabited, and is moderately steep-to on all sides. A valley which connects Telok Dalam (3.114) with Pulau Redang Harbour (3.115) gives the island the appearance of two islands at a distance.

3.114

Telok Dalam (5° 48′ N, 103° 02′ E), on the NE side of Pulau Redang, has thickly wooded sides; it is free from dangers except for a rock which dries 0·9 m (3 ft) situated close offshore near its W end. The head of the bay comprises two sandy beaches backed by palm trees and separated by a prominent rocky outcrop above which there is a thickly wooded hill. The E of the two beaches provides excellent landing; the W beach, where there is a small fishing community living in about six huts, is similar. Water may be obtained from a brackish swamp lake behind the E beach, but it is not recommended for drinking.

Safe **anchorage,** with swinging room for medium-sized vessels, may be obtained in Telok Dalam where the bottom is fine coral sand. The holding ground was reported in 1958 to be especially good at the seaward end of the bay where the bottom consists of hard sand or clay.

Directions. When approaching the anchorage in Telok Dalam, steer for the rocky outcrop bearing 200° and anchor in a convenient depth on this bearing.

Pulau Paku Besar, 51 m (167 ft) high to the tops of the trees, lies 4 cables off the E side of Pulau Redang with **Pulau Paku Kechil,** 4 cables farther S.

Pulau Lima (5° 47′ N, 103° 04′ E), 76 m (249 ft) high to the tops of the trees, lies 1 mile E of Pulau Paku Besar, with a depth of 21·9 m (12 fm) between.

3.115

Pulau Redang Harbour, situated on the S side of the island, is easy of access.

Pulau Koringo Besar and **Pulau Koringo Kechil** lie 3½ cables off the SE side of Pulau Redang, and on the N side of the E approach to Pulau Redang Harbour. Pulau Koringo Besar is 15 m (49 ft) high and partly wooded, and in the middle of the W side, there is a remarkably balanced boulder. Pulau Koringo Kechil, is bare and rocky, and 10 m (33 ft) high; it lies 1¼ cables NNE of Pulau Koringo Besar to which it is joined by foul ground.

Pulau Ekor Tibu (5° 44′ N, 103° 02′ E), 52 m (171 ft) high and wooded, lies ¾ mile S of Pulau Koringo Besar, and on the S side of the E approach to the harbour.

Pulau Chipor, 11 m (36 ft) high and rocky, lies ½ mile WSW of Pulau Ekor Tibu. **Batu Chipor,** a round-topped rock which dries 1·8 m (6 ft), lies 1¼ cables N of Pulau Chipor.

Pulau Penang, 137 m (450 ft) high to the tops of the trees, is separated from the SW extremity of Pulau Redang by a channel 1 cable wide in which there are depths from 10·4 to 15·8 m (34 to 52 ft). A coral bank, which dries, extends from 1 to 1½ cables from the N extremity and NE side of the island, and on it are two islets 8 and 5 m (26 and 16 ft) high, lying 3½ cables SE and ¾ cable N, respectively, of the N extremity of the island. There is a narrow boat channel leading to **Kampong Penang,** situated close within the N extremity of the island.

Connell Rock, a coral patch, with a depth of 4·9 m (16 ft) over it, lies 2¼ cables E of Pulau Penang.

Pulau Redang Light-structure is a metal framework tower, 8 m in height, situated on Pulau Penang 3 cables SSE from is N extremity.

Anchorage, with good holding ground and swinging room of 1½ cables, may be obtained by small vessels in the NW part of Pulau Redang Harbour in depths from 7 to 9 m (23 to 30 ft), sand. Larger vessels can anchor in the E approach to the harbour in a depth of 18 m (59 ft), sand and coral, with swinging room of 3 cables.

Directions. When approaching these anchorages, approach from the E and pass between Pulau Ekor Tibu and Pulau Koringo Besar. The passage N of Pulau Penang is dangerous when the tidal stream is strong, and should not be used without local knowledge.

3.116

Pulau Lang Tengah (5° 48′ N, 102° 54′ E), 127 m (417 ft, charted as 520 ft) high, lies 5 miles W of Pulau Redang; it is heavily wooded and cultivated in places. The channel between these two islands is clear of dangers.

3.117

Pulau Perhentian Besar, (5° 55′ N, 102° 45′ E), 346 m (1135 ft) high and thickly wooded is the E island of a group lying 9 miles NW of Pulau Lang Tengah; it is only sparsely inhabited. **Tanjong Basi** is the N point, **Tanjong Tukas Laut** the SE and **Tanjong Batu** the SW point of the island.

Pulau Perhentian Besar Light-structure is a white pedestal on a rock situated 6 cables W of the summit of the island.

Pulau Perhentian Kechil, 344 m (1129 ft) high, lies close W of Pulau Perhentian Besar, separated from it by a channel 2 cables wide at its narrowest part. This channel is only suitable for boats, as above-water rocks extend 1 cable W from Pulau Perhentian Besar. There are some villages on the S side of Pulau Perhentian

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Kechil, which is cultivated in places. **Tanjong Telok Kerma** is the N point, and **Tanjong Batu Panji** the S point.

Seabelle Rock, a small coral patch, awash, lies 1 mile NNW of **Tanjong Merbau Bujanggut,** the SW point of Pulau Perhentian Kechil, and 3 cables offshore; it has depths of from 5·5 to 11·0 m (18 to 36 ft) around it.

Anchorage with good holding ground may be obtained by small vessels with local knowledge off the S entrance of the channel between Pulau Perhentian Besar and Pulau Perhentian Kechil, especially during the NE Monsoon.

Pulau Susu Dara, 216 m (709 ft) high to the tops of the trees, lies 3½ miles NW of Pulau Perhentian Kechil. **Pulau Serenggeh,** 59 m (194 ft) high, lies 1 mile S, and **Pulau Rawa,** 55 m (180 ft) high to the tops of the trees, 1 mile E of Pulau Susu Dara. There is a group of islets between Pulau Susu Dara and Pulau Rawa, and a rock, 1 m (4 ft) high, lies ½ mile WNW of Pulau Susu Dara. These islets are mostly steep-to, and the channel between Pulau Perhentian Kechil and Pulau Serenggeh is clear of dangers.

Pulau Ru to Tumpat

3.118

Sungai Besut (5° 50′ N, 102° 34′ E), situated 3 miles W of Pulau Ru (3.111) is marked on its N side by two **leading beacons** (triangle) and on its S side by a flagstaff; the entrance is about 1 cable wide and is closed by a bar with depths of less than 2 m (6 ft) over it, which is liable to shift its position according to the monsoon. It is impassable, even for boats, without local knowledge.

A light is occasionally exhibited from a white metal tripod, 11 m in height, situated on the E entrance point of Sungai Besut.

Anchorage for small vessels with local knowledge may be obtained during the SW Monsoon off Sungai Besut, ½ mile offshore, where the holding ground of black mud is good.

Kampong Kuala Besut is situated on the W side of Kuala Besut, and there are some buildings and a jetty at **Kampong Seberang Timor** on the opposite bank.

An overhead cable, with a vertical clearance of 12 m, crosses Sungai Besut in a SE direction 4 cables within the entrance.

Kampong Raja, a village of considerable size, is situated on the SE side of Sungai Besut 2 miles up river.

3.119

The boundary between the States of Terengganu and Kelantan lies 1¾ miles NW of **Kuala Beset.**

3.120

From Kuala Besut to abreast the mouth of Sungai Peng Datu, 25 miles NW, the coast is low and sandy, and bordered by coconut trees.

Kuala Semerak (5° 52′ N, 102° 31′ E), near which there is a signal station and a flagstaff, is situated in the State of Kelantan, 3½ miles NW of Kuala Besut. The entrance to the river is 2 cables wide and is closed by a bar. **Sungai Semerak** is tortuous up to **Pasir Puteh,** 6 miles inland. A **light** is exhibited from a white wooden tower situated on the S side of the entrance to the river.

Anchorage for small vessels with local knowledge during the SW Monsoon may be obtained at Kuala Semerak ½ mile offshore where the holding ground of black mud is good.

Regular sea communication between Kuala Semerak and Singapore and Bangkok is maintained during the SW Monsoon.

3.121

Bachok (6° 04′ N, 102° 24′ E), a small town, is situated on the coast 14 miles NW of Kuala Semerak.

A **light** is exhibited at Bachok from a white wooden framework tower with a white triangular daymark.

Anchorage may be obtained off Bachok in a depth of 5 m (16 ft), sand and shell. During the NE Monsoon, owing to heavy seas, communication with the shore becomes difficult, but during the SW Monsoon there is a regular sea communication with Singapore and Bangkok.

3.122

Landmarks. Summits of hills which can be identified along this stretch of coast are:

Bukit Batu Meninjau (Maninjau), with an elevation of 511 m (1676 ft), situated 14 miles W of Kuala Semerak.

Bukit Panau, 232 m (761 ft) high, 6 miles WNW of Bukit Batu Meninjau.

Bukit Gunong, 192 m (630 ft) high, situated 6 miles SW of Bachok.

Bukit Marak, 112 m (369 ft) high, 5 miles WSW of Bachok.

3.123

Sungai Kemasin enters the sea 4 miles NNW of Bachok, with **Sungai Peng Datu** 3½ miles farther N. **Kampong Sabak** (6° 11′ N, 102° 20′ E) is situated ¾ mile NW of Kuala Peng Datu.

A **light** is exhibited from a metal framework tower with a white rectangular daymark, 15 m in height, at Kampong Sabak.

3.124

Churchill Patches (6° 05′ N, 102° 38′ E), with a least depth of 13·7 m (45 ft), sand and shell, over them, lie 14 miles E of Bachok.

Charts 1376, 771

3.125

Between Kampong Sabak and **Tabal** (6° 15′ N, 102° 06′ E), a village 14½ miles WNW, the coast is low and featureless and backed by numerous lagoons and waterways which form the delta of Sungai Kelantan. The only objects which may be easily identified are Bukit Marak and the hills S of it, described in 3.122, and Tumpat Light-structure (3.130).

3.126

A narrow bank with depths of from 0·6 to 1·5 m (2 to 5 ft) over it, 3¼ miles in length, lies parallel with the coast 3 cables off Kampong Sabak. Between this bank and the coast, there are depths of from 2·4 to 3·4 m (8 to 11 ft); landing in the vicinity of this bank is inadvisable except at high water. In 1961, patches with depths of 2·4 m (8 ft) over them were reported to exist 1 mile NNE of Sabak Light-structure (3.123). Mariners are warned to exercise caution in this vicinity.

In fair weather landing is possible at **Semut Api,** a village 4 miles WNW of Kampong Sabak. The landing place is indicated by a mark, consisting of a white triangular board on a tree; at low water, landing is somewhat obstructed by a detached sandbank which lies 50 m offshore abreast the mark.

Anchorage, during the SW Monsoon, may be obtained off Semut Api with Tumpat main light bearing 260° distant 6½ miles, in depths of from 7 to 9 m (23 to 30 ft) with good holding ground. This anchorage is the most convenient for vessels visiting Kota Baharu, 6 miles inland. Landing on the beach in this vicinity is comparatively free from SE swell, but slight surf may be experienced at low water.

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Chart 1376

Sungai Kelantan

3.127

Kuala Besar (6° 13′ N, 102° 14′ E), the E of the two main entrances to **Sungai Kelantan,** lies 6 miles WNW of Kampong Sabak, and discoloured water may be encountered several miles to seaward of this entrance. **Kuala Tongkong,** the other main entrance, lies 4 miles farther W. The mouths of the delta are continually changing, both in depth and direction and are sometimes blocked altogether.

Anchorage, with good holding ground, may be obtained in 9 m (30 ft), mud, 1 mile N of the entrance to Kuala Besar.

In August 1960, the sandspit at the entrance to Kuala Besar was reported to extend 6 cables W of its charted position and in 1964 to extend 5 cables N of its charted position. Depths in Kuala Besar are continually changing and local knowledge is necessary.

In 1960, the entrance to Kuala Besar close to the W shore where there was a small boat channel between the breakers and the shore. The bar is not passable in heavy swell, and it is inadvisable to cross it at night even with the assistance of a local pilot, as there are no navigational aids. In 1951, the boat channel followd the E shore until N of Customs Office Pier at **Kampong Che Latiff,** 1 mile S of the entrance; thence the deeper water lay W of a shoal which dried 0·3 m (1 ft) situated SW of the pier. Without local knowledge or the assistance of a pilot, it is not advisable for launches to proceed above the pier as the depths in the river may alter from month to month.

3.128

Currents and tidal streams. During the NE Monsoon when the river is in flood, there is a strong current in the river; off its mouth there is a S-going current of from 2 to 2½ knots. During the SW Monsoon the offshore current sets N at a slightly reduced rate. The tidal streams are very weak.

3.129

Kota Baharu (Bharu) (6° 08′ N, 102° 14′ E), which is situated 5 miles S of Kuala Besar, is the largest town and the seat of Government of the State of Kelantan.

Tumpat

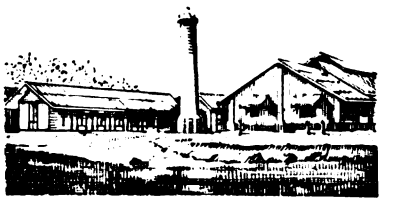
3.130

Tumpat, the principal port of Sungai Kelantan is situated on the S side of the entrance to Kuala Tongkong. It is sheltered from seaward by **Tanjong Kuda (Pantei Rhu Kuda),** a sandy spit 1¼ miles NNW of the town, but anchorage inside the spit is only suitable for small craft. The river is navigable for barges between Tumpat and Kota Baharu at high water.

Limits of the port of Tumpat are defined as between the parallels of 6° 11′·5 N and 6° 16′ N and the meridians of 102° 7′·4 E and 102° 11′·4 E.

Tumpat Lighthouse is a white round masonry tower situated in the town; the structure projects slightly above the trees and is difficult to identify from a distance.

A light is also occasionally exhibited from a beacon situated 2 miles WNW of Tumpat Light-structure.



Tumpat Lighthouse
(Original dated 1948)

A light-buoy (conical green; light flashing green every 5 seconds) marks the E side of a shoal with a least depth of 3·0 m (10 ft), on the W side of which there is a wreck with four masts, 12 m high, showing, the centre two forming a goal post, situated 2½ miles NNW of Tumpat Light-structure.

A small sand cay is situated 9½ cables ESE of Tanjong Kuda, on the N side of the entrance to Kuala Tongkong. A buoy (black spherical) is moored close W of the S extremity of the sand cay and a buoy (black can) lies 3 cables NE of it. Four beacons mark the channel leading to **Sungai Tumpat.**

Anchorage for small vessels may be obtained in a depth of 6 m (20 ft), soft mud, 2 miles NNW of Tumpat Light-structure. Large vessels anchor farther offshore but the holding ground is bad.

Fishing stakes in this vicinity may be encountered up to 6 miles offshore.

Directions. When proceeding to anchor off Tumpat from SE, keep 2½ miles off the coast until Tumpat Light-structure bears 180°, then steer for the anchorage.

A jetty, 185 m in length, projects N from the S side of the entrance to Kuala Tongkong, 11½ cables WNW of Tumpat Light-structure. A crane stands 1 cable E of the root of the jetty, and mooring buoys for the use of lighters lie N of the jetty head.

There are two wooden piers at Tumpat the W pier dries 0·3 m (1 ft) at its head and is situated N of the town 2 cables E of the light-structure. The other pier, which has a depth of 0·3 m at its head is situated in Sungai Tumpat on the E side of the town. There are depths in Sungai Tumpat of from 2·4 to 4·3 m (8 to 14 ft) as far as this pier, but its use, except near high water, is restricted by the shallow water N of Tumpat where the depths are of from 0·3 to 0·6 m (1 to 2 ft).

Tumpat is now virtually unused except for the export of logs. All cargo must be loaded or discharged by lighters at Kota Baharu, 6 miles up river. No single lift of over 2 tons can be handled. No cargo work is possible during the NE Monsoon from October to March.

Facilities. There is a small hospital at Kota Baharu.

Supplies. Limited supplies of provisions can be obtained at Kota Baharu. No fuel, water or stores can be obtained at Tumpat.

Communications. There is regular sea communication with other ports on the coast and with Singapore. There are good roads. Kota Baharu Airport is situated near **Sungai Peng Chepa,** 3½ miles NE of Kota Baharu.

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CHAPTER 4

GULF OF THAILAND, FROM TUMPAT TO PREK KAOH PAO, INCLUDING MAE NAM CHAO PHRAYA: WITH OFF-LYING ISLANDS AND DANGERS

GULF OF THAILAND

Chart 2414

General remarks

4.0

The Gulf of Thailand is one of the major coastal indentations of SE Asia. It extends NW for about 400 miles, and the entrance is 205 miles wide between Sungai Kelantan (3.127) and Mui Bai Bung (8° 37′ N, 104° 43′ E), the SW extremity of Vietnam.

The coastal ranges backing the W and NW shores of the gulf extend to the coast in places. The coast is composed of sandy beaches, interspersed by ridges and rocky points. Inland, there are dense forests and numerous streams.

The NE shore of the gulf is more indented and irregular than the W shore, and the islets and dangers lie farther offshore.

The central part of the gulf is relatively free from dangers although several rocks and shoals have been reported.

Most of the ports are small coastal trading centres. Bangkok, situated at the head of the gulf, is the only major port.

Information about tides and tidal streams, currents, climate and weather will be found in Chapter 1.

Mined areas. Details of mined areas in Gulf of Thailand will be found in 1.5 and Appendix I.

Navigation. Vessels proceeding to the head of the gulf may do so as directly as safe navigation permits.

For **gasfields and piplines** see 4.25a and 1.9a.

WEST SHORE OF GULF OF THAILAND

Chart 3961

Tumpat to Laem Khao Phra

4.1

Kuala Golok (6° 17′ N, 102° 04′ E) is situated 9 miles WNW of Tumpat (3.130). **Sungai Golok** forms part of the boundary between Peninsular Malaysia and Thailand. A regular motor-boat service up Sungai Golok provides the only communication by water with the interior of the State of Kelantan.

The town of **Tak Bai** stands in Thailand, on the left bank of Sungai Golok just inside the entrance. There is regular sea communication between Tak Bai, Bangkok and Singapore.

4.2

Khao Tanyong (6° 25′ N, 101° 52′ E), a conical tree-covered hill with an elevation of 294 m, is situated 14 miles NW of Kuala Golok and 1 mile from the coast; a conspicuous dark hill, covered with trees and over 150 m (500 ft) high, is situated 3 miles S of Khao Tanyong.

4.3

Khlong Narathiwat is entered 2½ miles NW of Khao Tanyong. A shifting sandbank extends 1 mile ENE from the S entrance point of the river, and the entrance itself is obstructed by a bar with a depth of 0·9 m (3 ft) over it. A mud-bank extends from the right bank within the entrance halfway across the river, leaving a channel close to the left bank. The position of the navigable channel is subject to change; in 1970, a NE storm blocked all the channels except for small craft at high tide.

A **light** is exhibited from a white metal framework tower, 28 m in height, situated on the N side of the entrance to Khlong Narathiwat.

A radio tower, 64 m (210 ft) in height and marked by air obstruction lights, stands ¾ mile S of the light-tower.

Narathiwat is a small rubber and copra port situated on the left bank of the river above the mud-bank ½ mile within the entrance. Good **anchorage** may be obtained 1½ miles off the river entrance. Small vessels, with local knowledge, can anchor in a depth of 5 m (16 ft), mud, closer in. Cargo is taken out to the anchorage in lighters which cross the bar at high water.

Supplies are obtainable at Narathiwat.

Communications. Regular sea communication is maintained between Narathiwat, Bangkok and Singapore.

4.4

The coast between Khao Tanyong (4.2) and Laem Khao Phra (4.7), 31 miles NW is low.

A range of mountains lies 8 miles inland; **Khao Nam Khang,** the summit at the N end of the range, 15½ miles NW of Narathiwat, attains an elevation of 780 m (2559 ft); **Khao Takorayo,** 3 miles farther S is 829 m (2720 ft) high.

4.5

Ko Lopi (Hin Rakit) (6° 40′ N, 101° 44′ E), a white rock 10 m high and steep-to, lies 15 miles NNW of Narathiwat and 3½ miles offshore.

4.6

Mae Nam Sai Buri is entered 20 miles NW of Narathiwat; it is obstructed by a shifting bar, over which, at times, there are depths of 0·6 to 0·9 m (2 to 3 ft). **Sai Buri** village stands 1½ miles within the entrance.

Sai Buri Light-structure is a white metal framework tower, 26 m in height, situated on the S side of the river entrance.

Anchorage may be obtained outside the mouth of Mae Nam Sai Buri, ¾ mile offshore, in a depth of 5 m (16 ft), blue mud. When approaching this anchorage from N, vessels should keep at least 1½ miles offshore. During the NE Monsoon, a heavy surf prevents the working of cargo.

Supplies. A few supplies can be obtained at Sai Buri.

Communications. Regular communication by sea is maintained between Sai Buri, Bangkok and Singapore.

4.7

Laem Khao Phra (6° 50′ N, 101° 34′ E), 9½ miles NNW of Sai Buri, consists of two remarkable steep bluffs, 2 miles apart, which form the N end of a range of mountains extending SSW; the summit, **Khao Yai,** 475 m (1557 ft) high, lies 6½ miles SSW of the cape.

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Out-lying islet

4.8

***Ko* Losin** (7° 20′ N, 101° 59′ E), 2 m high and steep-to all round, lies 39 miles NE of Laem Khao Phra. A **light-beacon** (metal framework; black and white bands) stands on Ko Losin.

Laem Khao Phra to Ao Pattani

4.9

Laem Ta Chi (6° 56′ N, 101° 15′ E) situated 19 miles WNW of Laem Khao Phra, is the W extremity of a long and narrow sandy spit covered with pine trees, which extends 6 miles WNW from the coast.

Laem Ta Chi Light-structure is a white metal framework tower, 29 m in height, situated 2 miles ENE of Laem Ta Chi. A **light** is also exhibited from a similar structure on the SW extremity of the spit.

A radio tower, 104 m in height and marked by obstruction lights, stands in the town of Pattani (4.12), 5½ miles SSW of Laem Ta Chi Light-structure.

4.10

Khot Loftus, a bank of hard sand with a least depth of 1·5 m, lies parallel with the coast with its W end 2 miles NE of Laem Ta Chi Light-structure. A below-water rock lies 1¾ miles ENE of the light-structure.

Khot Tun Beating China, a detached sandy shoal with a depth of 2·9 m over it, lies N of Khot Loftus and 3¾ miles NE of the light-structure.

In 1964 numerous dangerous rocks were reported to exist near Khot Loftus and Khot Tun Beating China, and mariners are advised not to navigate within depths of 10 m (33 ft) in this vicinity.

4.11

Tidal streams in the vicinity of Laem Ta Chi set E and W; the W-going stream attains a rate of 2 to 3 knots.

Anchorage may be obtained by small vessels with local knowledge 5½ miles W of Laem Ta Chi (6° 56′ N, 101° 15′ E) in depths from 5 to 9 m (16 to 30 ft), mud.

A dangerous wreck, marked by a buoy (S cardinal), lies 1¾ miles NNW of Laem Ta Chi.

Directions. The coast is low-lying but gives reasonably good radar definition. When approaching the above anchorage regard should be paid to Khot Enemy Chaser (4.14). During the SW Monsoon from April to September the anchorage is subject to frequent squalls from the NW, especially by night during the period of spring tides, and vessels are liable to drag their anchors.

4.12

Ao Pattani is a shallow bay which dries in places and is entered between Laem Ta Chi and the mouth of Mae Nam Pattani, 3 miles S. On the W side of the entrance to the river there is a flagstaff, a custom house and a pier.

Leading light-beacons (white wooden framework towers) 15 m apart, the rear beacon 14 m and the front beacon 7 m in height, are situated 2¼ miles S of Laem Ta Chi. In line, these beacons lead into Mae Nam Pattani.

A channel 60 m wide, dredged to 3·7 m (12 ft) (1985), leads from the river mouth to the berths at Pattani.

Pattani, which in 1955 had a population of 130 000, stands on both banks of Mae Nam Pattani 1½ miles from the river mouth. Dry bulk and general cargoes and rubber are transported by lighter to and from vessels at anchor.

Fishing vessels use the port.

Facilities. These are lighters with capacities of up to 100 tons.

Minor repairs can be carried out.

There is a hospital at Pattani.

Supplies. Limited quantities of provisions can be obtained.

There are no bunkering facilities, and only a limited supply of fresh water may be obtained in an emergency.

Communications. Frequent communication by sea is maintained between Pattani, Bangkok and Singapore.

Pattani Airport is situated 9 miles SW of the town.

Ao Pattani to Songkhla

4.13

Tidal streams along the coast between Ao Pattani and Songkhla Harbour (7° 14′ N, 100° 35′ E) set W and NW when the tide is rising and in the opposite directions when it is falling; the rates in either direction are up to 2 to 3 knots.

4.14

Between the mouth of Mae Nam Pattani and the mouth of Khlong Thepha (6° 52′ N, 100° 59′ E), 17 miles W, the coast continues low.

Khot Enemy Chaser, an extension of the coastal bank with a depth of 3·3 m at its outer end, lies 3 miles offshore and 9 miles W of the entrance to Mae Nam Pattani. **Liue Thale** with a depth of 1·8 m over it lies 1 mile offshore and 6 miles W of the same river entrance.

Khlong Thepha is entered 17 miles W of Mae Nam Pattani. The town of Thepha is situated on the SW bank of the river 2½ miles S of the entrance.

4.15

Ko Kham (6° 59′ N, 100° 52′ E), 40 m high and closely surrounded by below-water rocks, lies 9½ miles NW of the mouth of Khlong Thepha. **Mae Nam Sakom** discharges into a small bay 2½ miles SW of Ko Kham.

The town of **Chana** with a railway station is situated 5½ miles SW of the mouth of Mae Nam Sakom.

4.16

Between the entrance to Mae Nam Sakom and **Laem Khao Rong,** 18 miles NW, the coast is low. A range of mountains extends 16 miles S from Laem Khao Rong, attaining an elevation of 485 m (1590 ft) at **Khao Leng.**

Songkhla Harbour

4.17

Songkhla Harbour is entered between **Laem Sai** (7° 14′ N, 100° 35′ E), the E entrance point, and **Hua Khao Daeng,** ½ mile SW.

There are several islets and dangers in the approach to Songkhla Harbour. **Ko Nu (Hnu),** 69 m high, is the largest of the islets and is situated 1¼ miles ENE of Laem Sai. **Hin Luk Maeo Nok,** above water, lies 6¾ cables NE of Ko Nu. **Ko Maeo,** 33 m high, lies 1¼ miles NNW of Ko Nu, with **Hin Luk Maeo Nai,** a reef on which there is an above-water rock, lying 4¾ cables S of Ko Maeo.

Two rocks, each with a depth of 2·7 m over them, lie 5½ cables NNW of the NE end of Ko Maeo.

Songkhla Khao Tangkuan Lighthouse is a white brick tower 14 m in height, situated on the summit of **Khao Tangkuan (Tang Kuan),** 1½ miles SSE of Laem Sai. A radio tower, 114 m (374 ft) in height and marked by air obstruction lights, stands S of the lighthouse.

Anchorage outside Songkhla Harbour may be obtained by large vessels in depths of 10 m (33 ft) ¾ mile E of Ko Maeo. Small vessels can obtain anchorage 3½ cables W of Ko Nu.

4.18

A spit, patches of which dry, extends 2 miles NW from Laem Sai, and is crossed by a dredged channel close NW of a short breakwater extending NE from the

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latter point. There are heavy breakers on this spit in the NE Monsoon.

In 1987 the channel was being dredged to a depth of 9 m (29 ft) and a width of 120 m.

A **light** is exhibited from the seaward end of the above breakwater, and **Leading light-beacons** (white metal framework towers) situated 250 m apart on Hua Khao Daeng, when in line bearing 225°, lead through the dredged channel.

4.19

The W side of Songkhla Harbour is hilly, with a range of hills extending S from Hua Khao Daeng. **Khao Daeng,** in the centre of the range, has an elevation of 166 m and, 2 cables N of it, there is a similar hill on which there are two pagodas. The summit of this range is at its S end where **Khao Muang** reaches an elevation of 169 m.

4.20

Directions. Steer to pass close either side of the Fairway Light-buoy (can; black and white stripes; light flashing white every 3½ seconds) moored 1 mile SE of Ko Maeo; thence steer SW to pass close NW of No 2 Light-buoy (red) and SE of No 3 Light-buoy (black) and thence continue in the channel with the leading marks in line bearing 225°.

The turn into the harbour at the inward end of the dredged channel should only be attempted at slack water, thence steer a SSE course as requisite. Local knowledge is necessary within the harbour until improvements in the harbour are completed. Fishing stakes are reported to extend 30 m into the main channel.

4.21

Port limits. The limits of Songkhla Harbour are contained between 7° 12′·8 N and 7° 17′ N and as far E as 100° 38′ E.

4.22

Songkhla, the capital of the province of that name, is situated at the S end of the E side of the harbour, 2 miles within the entrance. In 1974 the population of Songkhla was estimated to be 30 000. The commercial area is in the S part of the town where there are several foreign consulates.

The principal exports are tin and other metallic ores, rubber, rice, fish, hides and horns.

Wharves. There are five piers in the harbour. The railway pier with a depth of 9·1 m alongside, lies at the S end of the town. The customs pier with a depth of 6·1 m, at its head, lies N of the railway pier. Between these two piers there are depths of 6 to 9 m close inshore. There is a T-headed pier, 70 m in length, with a depth of 0·9 m at its head, and at its root there is a large godown.

In 1987 it was reported that a pier was under construction extending ½ mile NE from a position 2 cables NE of Hua Khao Daeng; and a breakwater was under construction from a position about ¾ mile farther NW, extending NE for ½ mile thence SE.

Communications. Songkhla is the terminus of a branch line connected with the main Thai and Malaysian railways. There is regular communication by sea with Bangkok and Singapore, and other ports along the coast.

Songkhla Airport, from which international airlines operate throughout the year, is situated close SE of the town.

Charts 3961, 3542

4.23

A large lagoon, entered from Songkhla Harbour through a channel which is occasionally buoyed, extends 45 miles NNW, being separated from Gulf of Thailand by a low sandy neck of land ranging in width from 2 to 10 miles.

The lagoon is divided broadly into three parts. The S part, **Thale Sap Songkhla** is connected to the centre part, **Thale Sap,** by a narrow boat channel. Thale Sap Songkhla is navigable by small craft drawing 2·7 m. **Ko Yo,** 220 m (721 ft) high lies in the S part of Thale Sap Songkhla, 4 miles SW of Songkhla Harbour.

Thale Sap and **Thale Luang,** the N part of the lagoon, are shallow.

The town of **Phatthalung (Phathalung)** is situated near the NW side of Thale Luang, and is connected by railway with Bangkok and Singapore.

Thale Luang is connected at its N end with Ao Nakhon Si Thammarat (4.26), through **Mae Nam Pak Phanang (Khlong Pak Phanang)** which is reported to be navigable by boats drawing 0·6 m.

Songkhla Harbour to Laem Talumphuk

4.24

The coast from Songkhla Harbour to Laem Talumphuk, see below, 82 miles NNW, is low and sandy with trees in places; there are a few villages on the coast. A range of mountains which reach an elevation of 1290 m (4233 ft) runs parallel with the coast between 30 and 35 miles inland.

Offshore the bottom is mud and there are no known dangers close inshore.

A **light** is exhibited from a white metal framework tower, 31 m in height, at **Amphoe Ranot,** 37 miles NNW of Songkhla Harbour.

Laem Talumphuk (Talum Phuk) (8° 31′ N, 100° 09′ E) is a narrow curved spit of coarse sand with a group of trees near its extremity.

Laem Talumphuk Light-structure is a white metal framework tower, 29 m in height, situated on the extremity of the point.

Charts 3542, 3983

4.25

Ko Kra, 161 m (530 ft) high, lies 35 miles ESE of Laem Talumphuk. **Hin Sung (High Rock),** 81 m (265 ft) high with another rock 46 m (151 ft) high, close W of it, lies 1¼ miles SSE of Ko Kra. **Hin Rua,** 1 m (4 ft) high, lies 1 mile SW of the last mentioned rock. Ko Kra lies 4 miles S of its charted position. A **light** is exhibited from a white concrete tripod, 11 m in height, situated on Ko Kra.

Hin Sung

Ko Kra bearing 255°, 2 miles

(Original dated 1959)

Gasfields

4.25a

Erawan Gasfield (9° 04′ N, 101° 19′ E) consists of a number of platforms situated about 54 miles NE of Ko Kra. **Baanpot Gasfield** lies about 15 miles SSE, **Satun Gasfield** 15 miles NNE and **Platong Gasfield** 36 miles N of Erawan Gasfield.

A restricted area encloses the gasfields. Unauthorised passage between platforms or gasfields and anchoring within the area are prohibited.

Pipelines connect the gasfields and the platforms

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within them. A pipeline runs NNW from Erawan Gasfield thence N to a landing near Rayong (4.172): a spur from Platong Gasfield joins this pipeline. For lights and information about pipelines see 1.9a.

A storage tanker is moored 2½ miles NE of Platform A at the centre of Erawan Gasfield. Tankers up to 244 m in length berth alongside to load. Pilotage is compulsory: the pilot boards about 2 miles from the berth.

Laem Talumphuk to Chong Samui

4.26

Ao Nakhon Si Thammarat is entered between Laem Talumphuk (8° 31′ N, 100° 09′ E) and a point 5 miles W situated near the entrance to **Mae Nam Pak Phaya.**

A bar, 3½ miles wide with depths of less than 2 m (6 ft) over it, extends seaward from the line joining the two entrance points.

Ao Nakhon Si Thammarat is shallow and can only be navigated by boats at or near high water.

Mae Nam Pak Phanang (4.23) enters the sea at the head of Ao Nakhon Si Thammarat. **Amphoe Pak Phanang,** a town of considerable size, is situated 1 mile within the mouth of Mae Nam Pak Phanang and is accessible by vessels of 2·1 m draught. There is a wharf and a hospital at Pak Phanang.

4.27

The entrance to **Mae Nam Pak Nakhon,** which can only be navigated by boats, lies 2¼ miles SSE of Mae Nam Pak Phaya, the W entrance point of Ao Nakhon Si Thammarat. **Nakhon Si Thammarat,** a town of considerable importance, and the capital of the province of that name, is situated 7 miles WSW of the mouth of Mae Nam Pak Nakhon and is connected with Bangkok and Singapore by rail.

A **light** is exhibited from a white metal framework tower, 23 m in height, at the mouth of the river.

Charts 3983, 3963

4.28

The entrance to **Mae Nam Pak Phun** (8° 32′ N, 100° 00′ E) is situated 3¾ miles NW of that of Mae Nam Pak Phaya. There is a custom house near the entrance. A **light** is exhibited from a white metal framework tower, 27 m in height, situated on the N entrance point.

Anchorage may be obtained during the SW Monsoon 4½ miles NE of the mouth of Mae Nam Pak Phun, in a depth of 7 m (23 ft). Vessels from S should round Laem Talumphuk at a distance of not less than 5 miles.

4.29

Tidal streams 8 miles off the coast N of Laem Talumphuk flow NW to N with the rising tide and it has been reported attain 2½ to 3 knots off Mae Nam Pak Klai, situated 16 miles N of the entrance to Mae Nam Pak Phun and 3¼ knots off Laem Phlai Dam (9° 05′ N, 99° 55′ E) 18 miles farther N. This stream turns into Ao Nakhon Si Thammarat, where it takes a SW direction with a rate of up to 2½ to 3 knots. The stream with the falling tide sets in the opposite direction.

4.30

The coast is low between Mae Nam Pak Phun and **Laem Khao Kho Kwang (Hlaem Kho Kwang),** 28 miles N, which latter rises to a height of 148 m (485 ft) in **Khao Kho Kwang,** 1 mile W of the point; several small streams with villages near them discharge through this stretch of the coast.

From **Khao Luang,** 1784 m (5850 ft) high, situated 15 miles WSW of the entrance to Mae Nam Pak Phun, a range of mountains extends 35 miles N.

Chart 3963

A rock awash lies ¾ mile NNE of Laem Khao Kho Kwang (9° 00′ N, 99° 56′ E), E of **Pak Nam Si Chon;** the town of **Si Chon (Sichon)** lies along the S bank of this river close within the entrance.

Si Chon Light-structure is a white metal framework tower, 9 m in height, situated 6 cables NW of Laem Khao Kho Kwang.

4.31

The coast between Laem Khao Kho Kwang and **Laem Phlai Dam,** 4½ miles N, should be given a good berth. A rock, with a depth of less than 2 m (6 ft) over it, whose position is doubtful, lies 1 mile ESE of Laem Phlai Dam.

Khao Phlai Dam, which rises to an elevation of 473 m (1553 ft), is situated 1 mile WSW of Laem Phlai Dam, and **Khao Phra,** 813 m (2673 ft) high, is situated 3 miles W of Laem Phlai Dam. See view (4.31–4.41) on page 106.

4.32

Laem Na Tham (Hlaem Hna Tham) (9° 12′ N, 99° 53′ E) which is conspicuous, lies 8 miles N of Laem Phlai Dam; it consists of five peaks, known as the **Five Devils,** one of which is 236 m (774 ft) high.

Khao Luang Phanom (Hluang Phanom), with an elevation of 542 m (1778 ft, charted as 1652 ft), is situated 10¼ miles WSW of Laem Na Tham.

Khanom is a small port situated at a river mouth 2 miles NNW of Laem Na Tham. The chimney of a power station (red and white bands; red obstruction light) stands on the NW bank of the river.

Barytes ore and gypsum are brought by lighter to vessels at anchor off the port. The best anchorage is 2½ miles E of the river mouth in 12·8 m (7 fm): the holding ground is good, mud and sand.

A wharf is used by small tankers supplying the power station. A car ferry runs to a resort on Ko Samui.

There are no pilots and no tugs. No supplies are available but small repairs can be carried out.

Laem Thrap (9° 19′ N, 99° 49′ E) is situated 8 miles NNW of Laem Na Tham.

Between Laem Thrap and **Laem Thuat,** 8 miles WNW, the coast consists of several small bays with islets offshore.

Chong Samui

4.33

Chong Samui leads between the mainland and **Ko Wang Nai** (9° 19′ N, 99° 54′ E), 3¾ miles E, which is 72 m (236 ft) high and is fringed by rocks. A **light** is shown from a white metal framework tower, 9 m in height, situated on the summit of the island. The channel is partly encumbered by fishing stakes.

Ko Wang Nok, 29 m (95 ft) high, and fringed with rocks, lies 1 mile E of Ko Wang Nai. **Hin Ran Pet,** an above-water rock, lies ½ mile SE of Ko Wang Nok.

Ko Rap, 31 m (102 ft) high, is also fringed with rocks, and lies 2 miles E of Ko Wang Nok. A bank, on which there are two above-water rocks, extends 2 cables S from Ko Rap.

A below-water rock lies ½ mile NE of Ko Rap.

Hin Nam Lai, above water and foul, lies 1¼ miles NE of Ko Wang Nok; **Ko Mat Kaing** lies 1 mile NNW of Hin Nam Lai.

4.34

Hin Ang Wong, 2 m (6 ft) high, lies on the E end of a detached reef 3½ miles ESE from **Laem Ma So,** the S extremity of Ko Samui.

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Ko Katen, 235 m (772 ft) high and fringed with rocks, lies midway between Ko Mat Kiang and Ko Samui. An above-water rock lies ½ cable off the SE part of Ko Katen. Numerous dangers exist to the NW and NE of Ko Katen. **Ko Mat Sum** lies 1½ miles E of Ko Katen, with a rock awash ½ mile SW of it. Between Ko Mat Sum and Ko Samui, there are several dangers, including **Hin Laok** which consists of above and below-water rocks.

4.35

Tidal streams in the S approaches to Chong Samui set N on the rising tide, and it has been reported that they attain a rate of 3¼ knots. The stream divides, one part setting NW through the strait, and the other continues N past the E side of Ko Samui.

Ko Samui

4.36

Ko Samui, with its SE extremity, **Laem Thian (Hlaem Set)** (9° 25′ N, 100° 01′ E), situated 3½ miles ENE of the N end of Ko Katen, is part of the province of Nakhon Si Thammarat (4.27). **Khao Phlu,** its summit, is 649 m (2129 ft) high, situated 4½ miles N of Laem Thian. The island is covered with dense forest, and there are several villages.

The passage between Ko Katen and Ko Samui is only suitable for small craft with local knowledge.

Ko Mae Thap, a group of five islets lying close together, are situated 2 miles NW of **Laem Hin Khom (Kham),** the SW extremity of Ko Samui. **Laem Chong Klam (Chain Khram)** (9° 29′ N, 99° 55′ E) the W point of Ko Samui, lies 4½ miles N.

Amphoe Ko Samui (Ban Ang Thong) is situated 3 miles NNE of Laem Chong Klam, in the middle of a bay between that point and **Laem Yai (Hlaem Hyai),** the NW extremity of the island. Except for an opening near the village, this bay is fringed by a reef. A can buoy marks the end of a pipeline, which extends 4 cables offshore from the village; there is a mooring buoy on each side of the can buoy.

A **light** is exhibited from a white metal framework structure, 15 m in height, situated on Laem Yai.

4.37

Laem Thong Lak (Hlaem Nan) lies 4¾ miles NE of Laem Thian (4.36). On the E side of Ko Samui from Laem Thong Lak to **Laem Tong Kean** (9° 34′ N, 100° 06′ E), 6 miles N, there is a bay in which **Ko Mat Lang (Hlang)** is situated 2 miles SSW of Laem Tong Kean. Ko Mat Lang is surrounded by rocks and there are rocks between it and the coast NW. See view (4.31–4.41).

4.38

Anchorage can be obtained by small vessels with local knowledge in the bays on the E and W sides of Ko Samui according to the prevailing monsoon.

Chong Phangan

4.39

Chong Phangan is entered from E between **Ko Kong Ok** (9° 36′ N, 100° 06′ E), 1¼ miles NE of the NE extremity of Ko Samui, and **Laem Hat Rin (Hlaem Thian),** the SE extremity of Ko Phangan.

On the SE side of the channel, between Ko Kong Ok and **Ko Som,** 2 miles WSW, there are numerous above-water rocks, and within 1 mile W of Ko Som there are two above-water rocks and other dangers.

Laem Na Phra Lan (Hlaem Na Lan) (9° 35′ N, 99° 59′ E) is situated 4½ miles W of Ko Som, and between them there are several bays in the coast where small vessels with local knowledge may obtain anchorage.

Hin Kong Noi, a small islet, lies close offshore ¼ mile off the NW extremity of Ko Samui.

On the N side of Chong Phangan, **Ko Kong Rin,** 3 m (10 ft) high, lies close S of the SE extremity of Ko Phangan. **Ko Tae Nai** lies ¾ mile SW of Ko Phangan, with **Ko Tae Nok** (9° 42′ N, 99° 57′ E) 1½ miles farther W.

4.40

Tidal streams in Chong Phangan flow NW during the rising tide, and are an off-shoot of that setting N off the E coast of Ko Samui (4.35).

4.41

Ko Phangan, attains an elevation of 626 m (2055 ft) in **Khao Ra** near the centre of its N end; it is part of the province of Chumphon. **Ko Ma** lies close off the NW side of Ko Phangan; **Ko Kong Nui,** ½ mile offshore, lies ¾ mile SW of the W extremity of Ko Phangan; **Ko Kong Kliang,** two rocks close together, lies 1¾ miles farther SW. **Laem Thong Ta Pan (Hlaem Pak Chong)** is the NE extremity of the island.

Anchorage may be obtained by small vessels with local knowledge on all sides of Ko Phangan according to the monsoon prevailing at the time.

Charts 3963, 3964

Chong Ko Tao

4.42

Chong Ko Tao separates Ko Phangan from Ko Tao, 18 miles NNW. **Hin Bai** (9° 57′ N, 100° 00′ E) 13 m (44 ft) high and steep-to, lies near the centre of Chong Ko Tao, 8¾ miles N of Ko Phangan.

Ko Tao (10° 03′ N, 99° 50′ E) is situated 11½ miles NW of Hin Bai, and attains an elevation of 379 m at its N end. **Ko Hang Tao,** with an islet close S of it, lies ½ mile off its NW extremity. An islet lies on the reef which extends ¼ mile from the SE extremity of the island.

A **light** is exhibited from a white concrete tower, 10 m in height, situated on the NE extremity of Ko Tao, 1¼ miles E of Ko Hang Tao.

Tide-rips occur off the SW end of Ko Tao.

Chart 3963

Islands on the South Side of Chong Ko Tao

4.43

A wide passage lies between Ko Samui (4.36) and Ko Phangan (4.41) on the E side, and a chain of islands lying N of Laem Thuat (9° 20′ N, 99° 41′ E) (4.32) on the W side. The passage is entered from N between the NW extremity of Ko Phangan and Ko Tungku (9° 48′ N,

(4.31–4.41) Approach to Chong Samui from ENE
(Original dated 1872)

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99° 43′ E) (4.49), and its S end connects with Chong Samui (4.33).

4.44

Tidal streams NW of Chong Samui. After passing through Chong Samui (4.35), the flood stream flows N past Ko Samui. At the same time, off-shoots flow W through the channels between the islands N of Laem Thuat which lead towards Ao Ban Don (4.50). The main branch of the tidal stream, after passing W of Ko Phangan, turns NW into Chong Ko Tao, and then SW 10 miles E of Hin Loftus (4.56); close inshore S of this shoal, it sets S into Ao Ban Don. On the falling tide the stream probably sets in the opposite direction.

4.45

W of Ko Samui and Ko Phangan, numerous islands, islets and rocks extend 28 miles N from the mainland.

Chong Tai, the S passage through this chain of islands, leads into Ao Ban Don (4.51) between **Ko Palikan** (9° 21′ N, 99° 41′ E) and **Ko Nok Tapho,** 168 m (552 ft) high, 1½ miles N.

A **light** is exhibited from a white metal framework structure, 15 m in height, situated on the summit of Ko Palikan.

The following islets lie between Ko Nok Tapho and Ko Phaluai 6½ miles N: **Ko Som, Ko Wua Chiu, Ko Chuak** and **Ko Thalu.**

4.46

Ko Phaluai (9° 32′ N, 99° 41′ E), 340 m (1117 ft) high, lies 2¼ miles N of Ko Chuak. Near the SW extremity of Ko Phaluai there is a remarkable horn, 316 m (1037 ft) high. **Hin Lak,** above water, with a small islet 3 cables W of it, lies ¼ mile N of Ko Phaluai. **Ko Tao Pun,** 152 m (499 ft) high, and surrounded by rocks, lies ½ mile off the NW side of Ko Phaluai.

4.47

Chong Ang Thong lies between Ko Phaluai and Ko Ang Thong, 3¼ miles N; it is the best channel through this chain of islands and is entered from E between Hin Lak and **Ko Ai Chae,** also known as **Ko Phai Ruak,** an islet 91 m (300 ft) high, situated 2¾ miles NNE of Ko Phaluai.

4.48

Ko Ang Thong (9° 37′ N, 99° 41′ E) attains an elevation of 395 m (1297 ft) near its S end. **Ko Wua Te,** 162 m (530 ft) high, lies 2 miles E of the S end of Ko Ang Thong; an above-water rock lies close SE of this islet and ½ mile ENE of its N end, there are other above-water rocks.

Several islands and rocks extend 4 miles N from Ko Ang Thong to **Ko Lim** (9° 42′ N, 99° 41′ E) on the S side of **Chong Nua (Hnua),** the N passage through the islands.

Ko Wao Yai, 3½ miles N of Ko Lim, is 100 m (327 ft) high with three islets and other dangers extending ¾ mile S from it.

Charts 3963, 3964

4.49

Ko Tungku (9° 48′ N, 99° 43′ E) lies 2½ miles NE of Ko Wao Yai and is the N islet of the chain forming the W side of the wide passage; it is 59 m (192 ft) high and has a small islet 3 cables S of it.

Chart 3963

Ao Ban Don and approaches

4.50

The coast between Laem Thuat (4.32) and **Laem Khung Mo** (9° 17′ N, 99° 32′ E), 9½ miles WSW, is ringed by a drying mud-bank which extends ½ mile offshore. **Khao Hom Muang,** a remarkable crag 163 m (536 ft) high, is situated close inland 1¾ miles SSW of Laem Thuat.

4.51

Ao Ban Don, entered between Laem Khung Mo and **Laem Sui,** 14¼ miles WNW, is shallow and only navigable by small craft with local knowledge. The shoals in it are reported to be constantly changing in position and decreasing in depth. There are depths of 4·3 m (14 ft) and less S of a line joining Laem Sui (9° 23′ N, 99° 19′ E) and Ko Phaluai (4.46).

Ko Prap (9° 16′ N, 99° 26′ E), on which there is a custom house, is 60 m (197 ft) high, and lies 6 miles W of Laem Khung Mo and 3¾ miles offshore. During the SW Monsoon, there are numerous fishing stakes within a distance of 6 miles NE of Ko Prap.

Ko Prap Light-structure is a white metal framework tower 6 m in height, situated on the summit of the island.

Anchorage may be obtained by small craft 2 miles NE of Ko Prap, in a depth of 3 m (10 ft) vessels, with a draught of 4 m and over, can anchor 6 miles N of Laem Sui.

4.52

The mouth of **Khlong Phum Duang (Mae Nam Ban Don)** lies 5½ miles SW of Ko Prap, and 4½ miles SE of **Laem Phan Khuha,** a low point.

Khlong Phum Duang is accessible to vessels of 1·8 m draught at the period of spring tides only, as a shallow bar across the mouth makes the passage difficult even for lighters or small boats; at neaps the bar is impassible.

The channel in the mouth of Khlong Phum Duang is marked by light-beacons and beacons; of these, a light-beacon (white concrete post) stands at the entrance to the channel 3¼ miles SW of Ko Prap. A beacon (concrete post; green and white bands) stands 6¼ cables farther SW; another beacon (concrete post; red and white bands) stands a farther 6 cables SSW, and a light-beacon similar to the entrance light-beacon stands at the S end of this part of the channel 5 miles SW of Ko Prap.

The town of **Surat Thani** stands 4 miles within the mouth. Above this town, the river is divided into two branches. It is reported that, owing to the watershed being so low, boats using the E branch can communicate, with only a small porterage, with the upper waters of **Khlong Trang** which discharges on the W side of the Malay Peninsula.

4.53

Mined area. An area dangerous due to mines exists in Ao Ban Don. See 1.5 and Appendix I.

Ao Ban Don to Lang Suan

4.54

Laem Duat (9° 42′ N, 99° 10′ E) is situated 21 miles NNW of Laem Sui and several rivulets discharge along this stretch of coast. The most prominent feature on this part of the coast is **Khao Prasong,** see view 2, with an elevation of 413 m (1356 ft), situated 2 miles inland, 11¾ miles NW of Laem Sui. **Ban Tha Krachai** lies at the mouth of **Khlong Tha Krachai,** a small river 4 miles NNE of Khao Prasong. **Khao Khan Thuli,** a prominent sharp conical peak, 247 m (812 ft) high, lies 1½ miles inland and 7½ miles NNW of Khao Prasong.

Hin Khan Thuli (9° 40′ N, 99° 14′ E), an isolated rock with a depth of 0·9 m (3 ft) over it, lies 5 miles ESE of Laem Duat. **Hin Khan Na Tai,** a rock with a depth of less than 2 m (6 ft) over it, lies on the edge of the coastal bank, 1½ miles E of Laem Duat. **Hin Khan Na Nua (Hnua),** with a depth of less than 2 m (6 ft) over it, also lies on the edge of the coastal bank, 4 miles NNE of

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Laem Duat. **Hin Khong,** a reef with a depth of 2 m (6 ft) over it, lies on the edge of the 11 m (36 ft) line and 5½ miles offshore.

Hin Phum, a rock with a depth of 7·9 m (26 ft) over it, lies 8¾ miles ENE of Laem Duat; **Hin Chen Thale,** a rock with a depth of 8·5 m (28 ft) over it, lies 3¾ miles farther N and 9 miles offshore.

Charts 3963, 3964

4.55

Between Laem Duat and **Laem Thong Dinso (Hlaem Bang Man)** (9° 51′ N, 99° 10′ E), 9 miles N and thence to the entrance of Khong Lang Suan, a farther 5½ miles, N, the coast is wooded, and on the coastal bank there are many off-lying dangers, some of which lie in the SE approach to Lang Suan anchorage (4.56).

Hin Luk Chang Kong Nok, with a depth of less than 3·4 m over it, lies 6¼ miles SE of Laem Thong Dinso; **Hin Loftus,** a reef with rocks awash on it, lies between the two. **Hin Ang,** a rocky patch with a depth of less than 1·8 m over it, lies 4¼ miles ESE of Laem Thong Dinso and **Hin Hemawanit,** a 5·5 m (18 ft) rocky patch lies 1¼ miles farther NE outside the 10 m (33 ft) line. **Hin Klang Ao,** a 3 m (10 ft) stony patch, lies on the edge of the 10 m (33 ft) line 3¾ miles NE of Laem Thong Dinso; it is marked by a beacon (N cardinal). All these dangers lie in the white sector of Lang Suan Light S of the bearing 308°.

Lang Suan and approaches

4.56

Lang Suan anchorage is situated off the mouth of Khlong Lang Suan (9° 56′ N, 99° 10′ E). The approach is encumbered by several rocks and shoals. During the SW Monsoon fishing stakes may be encountered N and S of the river entrance.

Lang Suan Light-structure is a white metal framework tower, 13 m in height, situated on the S side of the entrance to the river.

4.57

The inner end of **Hin Si Phayat (Hin Sriphyatt),** a narrow spit on which there are several rocks awash, lies 1½ miles SE of Lang Suan Light-structure, and is marked by a light-buoy (W cardinal) moored 1 mile offshore. Small craft, approaching the inner part of Lang Suan anchorage must pass W of this buoy.

Hin Folkon, with a depth of 0·9 m (3 ft) over it, lies 1¾ miles NE of Lang Suan Light-structure; it is marked on its W side by light-buoy (W cardinal). Patches with rocks awash and with depths of less than 2 m (6 ft) over them, lie between the W end of Hin Si Phayat and Hin Folkon.

Hin Haeng, with a depth of 4·4 m over it, lies 2 miles NE of Hin Folkon. **Hin Mai (Hmai)** with a depth of 9·2 m over it, lies 5 miles ENE of Hin Folkon (9° 58′ N, 99° 11′ E).

Hin Pak Nam, a rocky shoal with a depth of 8·0 m over it, lies 1¼ miles SW of Hin Mai, with another rocky patch with a depth of 8·7 m over it, 1½ miles further ESE.

Hin Thong Wo (Hwo), a rocky shoal with a least depth of 7·7 m over it, lies 7¼ miles NE of Lang Suan Light-structure.

Hin Si Phayat and the dangers lying N and NE of it, described above, lie in the red sector of Lang Suan Light between the bearings of 223° and 308°.

4.58

Anchorage. It is reported that small vessels with local knowledge may be able to obtain secure anchorage in the inner part of Lang Suan anchorage, W of the inner line of dangers, in a depth of 5 m (16 ft).

4.59

The mouth of **Khlong Lang Suan** is obstructed by a shifting bar, over which there is a depth of about 1·8 m (6 ft) at high water; in the rainy season the out-going **stream** from the river attains a rate of 4 knots. There are drying sandspits off the mouth, and a bank, with depths of less than 5 m (16 ft) over it, extends 1 mile offshore.

The town of **Lang Suan** is situated 6 miles above the mouth of the river.

Communications. Lang Suan is connected to the Thai railway system. There is regular communication by sea with Bangkok and Singapore.

Lang Suan to Ao Sawi

4.60

Laem Riu (Hriu) is a promontory situated 4 miles N of the entrance to Khlong Lang Suan, which rises to **Khao Laem Riu (Hriu),** with an elevation of 119 m (389 ft).

Khao Tong Wo (10° 02′ N, 99° 11′ E), 108 m (353 ft) high, lies 1¼ miles N of Khao Laem Riu. See view 2.

Ko Phithak, 100 m high, lies 4 cables NE of Laem Tong Wo, and is connected to it by a drying ridge; a ledge of rocks, on which is **Hin Phithak,** above water, extends ½ mile E from Ko Phithak.

Ko Khram, with an elevation of 59 m, surrounded by foul ground, lies 7 cables N of Ko Phithak and 1½ miles offshore.

Between Khao Tong Wo and **Khao Kratha,** 311 m (1019 ft) high, 3 miles NW, the coast is wooded and fringed by a sand and mud-flat which dries and extends from 3 to 5 cables offshore.

The mouth of **Mae Nam Tako** lies close N of Khao Katha. A **light** is exhibited from a white concrete column, situated on the S entrance point of this river.

4.61

Between the mouth of Mae Nam Tako and **Laem Ngu,** a small promontory 3½ miles NNE, the coast is wooded and fringed by a drying bank extending 1½ to 5 cables offshore. During the SW Monsoon, fishing stakes may be encountered in this part of the bay. A reef, on which there are some above-water rocks, extends 1½ miles S and ¾ mile SE from Laem Ngu. **Ko Maphrao,** 135 m high, lies on the outer edge of his reef.

Ko Rang Banthat (10° 07′ N, 99° 13′ E) is a rocky islet 24 m high, lying 3 miles SE of Ko Maphrao. A **light** is exhibited from a white metal framework tower, 9 m in height, situated on Ko Rang Banthat.

Ko Khi Nok, 10 m high, lies 1¾ miles W of Ko Rang Banthat.

Ko Khang Sua, with an elevation of 60 m, and a rock awash close W of it, lies 2¼ miles ENE of Ko Maphrao. **Ko Rang Ha,** 76 m high, also with a rock awash close W of it, lies midway between Ko Maphrao and Ko Khang Sua.

4.62

Between Laem Ngu and **Laem Pracham Hiang** (10° 14′ N, 99° 15′ E), which rises to an elevation of 255 m, 6½ miles NE, the coast is hilly, except within the shores of a small bay, which dries, 3 miles SW of Laem Pracham Hiang.

Ko Thong Kaeo, 26 m high, with a rock with a depth of less than 2 m (6 ft) close W of it, lies 2¾ miles SW from Laem Pracham Hiang. **Ko Mat Wai Yai (Ko Mat Hwai Hyai),** 55 m high, and **Ko Mat Wai Noi,** 63 m high, lie, respectively, 2 miles and 1½ miles S of Laem Pracham Hiang. **Ko Noi** lies ¾ mile SSW of the same point.

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Tidal streams off Ko Mat Wai Yai set N on the rising tide.

Chart 3964

Ao Sawi

4.63

Ao Sawi is entered between Laem Pracham Hiang and **Laem Thian** (10° 21′ N, 99° 17′ E), 7 miles NNE. Only small vessels with local knowledge should enter this bay.

Ko Kula, which has a sharp peak 175 m high, lies 1 mile NE of Laem Pracham Hiang, with **Ko Kra,** 44 m high, between them.

A group of islets lies within 1¼ miles NW of Laem Pracham Hiang; of these, **Ko Maeo** with an elevation of 92 m is the S and largest islet; **Ko Khi Nok,** 14 m high, lies 3 cables NE of Ko Maeo; **Ko Nu,** 77 m high, lies 4 cables N of Ko Maeo, and is the N islet of the group.

Ko Yung, with an elevation of 79 m lies 1¼ miles NW of Ko Kula.

A group of islets and rocks lies SE of Laem Thian, the N entrance point of Ao Sawi; of these, **Ko Ka,** 21 m high, lies 1¼ miles ESE of Laem Thian; **Ko Rang Kachiu,** with an elevation of 69 m, lies 2½ miles SE of Laem Thian; **Ko Thong Lang,** 98 m high, 2 cables N of which are some above-water rocks, lies 1 mile WNW of Ko Rang Kachiu.

Ko Klaep, 27 m high, lies midway between Ko Yung and Ko Thong Lang; foul ground surrounds Ko Klaep. **Ko Hua Krachong,** a rock, 9 m high, lies 2½ miles W of Ko Klaep, near the edge of the mud-flat extending from the head of the bay.

4.64

Between Laem Thian (10° 21′ N, 99° 17′ E) and a point 4¼ miles N, the coast is fringed by a narrow reef except in front of the sandy beaches. Hills close to the coast rise to an elevation of 100 to 150 m. **Khao Luk Klang,** a hill 177 m high, is situated 1 mile N of Laem Thian.

Ao Chumphon and approaches

4.65

Ko Lawa, with an elevation of 49 m, lies 2 miles ENE of Laem Thian.

Ko I Raet, 94 m high, with **Ko Lak Raet,** 19 m high, and other above-water rocks close NE of it, lies 8 cables NE of Ko Lawa. **Ko Maphrao,** 55 m high, lies 6 cables offshore and 1¾ miles NW of Ko I Raet, with a detached 3·6 m patch midway between them.

Ko Mattra 132 m high, with rocks extending a short distance from its NE and SW ends, lies 1¼ miles NE of Ko I Raet. **Ko Sak,** 37 m high, lies 2½ miles NW of Ko Mattra.

4.66

Ao Chumphon is entered between **Ko Kho Thian** (10° 25′ N, 99° 18′ E), which lies on a reef close off the point 4¼ miles N of Laem Thian, and Laem Kho Kwang, 5½ miles N. A light-buoy (E cardinal) is moored close NE of Ko Thian. The mouth of **Khlong Tha Taphao** is situated 2 miles NW of Ko Kho Thian; there is a village on either side of the mouth.

During the SW Monsoon there are numerous fishing stakes in Ao Chumphon.

Tidal streams in Ao Chumphon set in a SW direction on the rising tide and in a NE direction on the falling tide; the SW-going stream runs at a rate of ¼ to ½ knot.

4.67

Mined area. A dangerous area due to mines lies in Ao Chumphon. See 1.5 and Appendix I.

4.68

Ko Samet, with an elevation of 82 m, lies on the S side of the entrance to Ao Chumphon, 1 mile NE of Ko Kho Thian. Except on its SE side, Ko Samet is fringed with rocks.

During the NE Monsoon small vessels with local knowledge can obtain anchorage under the lee of Ko Samet.

A bank which dries extends 2 cables offshore between Ko Kho Thian (10° 26′ N, 99° 17′ E) and a position 6 cables SE of the mouth of Khlong Tha Taphao, where there is a rocky projection.

4.69

In the approaches to Ao Chumphon there are several islands. **Hin Lak Mattra,** 3 m high, lies 2 miles NNE of Ko Mattra. A shoal, with a depth of 6·2 m over it, lies 7 cables NNE of Hin Lak Mattra. **Ko Lak Ngam,** 19 m high, lies 2½ miles NE of Hin Lak Mattra.

Ko Thalu, 29 m high, with **Ko Kalok,** 40 m high, 1 mile NE of it, lies 2½ miles WNW of Hin Lak Ngam.

4.70

Ko Ngam Yai (10° 30′ N, 99° 25′ E), 103 m high, with **Ko Ngam Noi,** 58 m high, close SW, lies 3 miles NE of Ko Kalok. An above-water rock, **Hin Lak Ngam,** lies close NNE of Ko Ngam Yai.

Ko Chorakhe, with an elevation of 42 m, lies 4¼ miles NNW of Ko Ngam Yai. A reef, with a rock awash at its outer end, extends 1 mile W from the S extremity of Ko Chorakhe.

4.71

Ko Mattaphon, 46 m high, lies ¼ mile NE of the mouth of Khlong Tha Taphao. It is connected to the river mouth by a drying bank which extends for ½ mile off the coast, forming the head of Ao Chumphon. The S part of this bank consists of sand and the N part of mud; the N part of the bank is 2¾ miles NNW of Ko Mattaphon.

A **light** is exhibited from a white metal framework tower, 6 m in height, situated on Ko Mattaphon. A beacon (wooden; red and white bands; red can topmark) marks the E side of the channel in the approach to the river mouth.

During the SW Monsoon anchorage may be obtained in Ao Chumphon, 1½ miles NE of Ko Mattaphon, in depths from 7 to 9 m (23 to 30 ft).

Hin Chumphon, with a depth of less than 2 m (6 ft) over it, lies in the N part of the bay, 1½ miles SSE of Laem Kho Kwang, the N entrance point. Hin Chumphon is covered by the red sector of Ko Mattaphon Light, between the bearings of 208° and 216°.

Laem Kho Kwang (10° 31′ N, 99° 16′ E), the N entrance point of Ao Chumphon, has a hill, 55 m high at its extremity, which is connected to the coast SW of it by a low isthmus covered with trees. The coast on the N side of Ao Chumphon is hilly, the E slopes rising steeply. **Khao Lan,** 118 m high, lies 1 mile SW of Laem Kho Kwang.

4.72

The town of **Chumphon** lies 9 miles from the mouth of Khlong Tha Taphao and is connected to the Thai railway system.

Ao Chumphon to Laem Yai

4.73

Ao Phanang Tak is entered between Laem Kho Kwang and **Laem Thung Sai,** 1½ miles NNE. The shores of the bay are wooded, and the coastal bank of sand dries out to a distance of ¾ mile.

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Khao Kralat, with an elevation of 228 m, is situated 2½ miles NE of Laem Thung Sai.

Laem Saphli (10° 35′ N, 99° 17′ E) lies 3 miles NNE of the N end of Ao Phanang Tak; **Ban Tha Samet** lies close N of this point.

4.74

Laem Thaen (10° 40′ N, 99° 22′ E) situated 7¼ miles NNE of Laem Saphli is a peninsula at the S extremity of which there is a hill 46 m high with a red cliff.

Ao Bang Son lies W of Laem Thaen and is shallow. **Ban Na Thap,** off which local craft occasionally anchor, lies on the W side of this bay. **Khao Din So** rises to an elevation of 350 m 4 miles SW of Ban Na Thap.

4.75

Ko Khai, 107 m high, lies 3 miles NE of Laem Thaen.

Table Rock, 26 m high, lies 3 miles NNE of Laem Thaen and ¼ mile offshore.

Khao Yai Bang Chak, with an elevation of 192 m, the E side of which is steep is situated near the coast, 7¼ miles NNE of Laem Thaen.

4.76

Ko Ran Pet (10° 47′ N, 99° 32′ E) is 26 m high, and is the outermost of a group of islets extending 5½ miles SSE from Laem Chong Phra (4.77).

Ko Ran Kai, 30 m high, lies 1¼ miles NNE of Ko Ran Pet.

Ko Rang, 100 m high, lies 3¾ miles NW of Ko Ran Pet, and **Ko Sikong,** an islet 51 m high, with a rock awash close NE of it, lies 1¼ miles NNE of Ko Rang. A **light** is exhibited from a white metal framework tower, 6 m in height, situated on the summit of Ko Rang.

Ao Pathiu is entered between the SW extremity of Ko Iang and the mainland coast 2 miles W. **Khlong Pathiu** flows into the NW side of this bay; **Ban Pak Khlong Pathiu** is situated on the W side of the river entrance. **Khao Khieo** rises to an elevation of 264 m 2 miles NE of the village.

Ko Iang, 247 m high, lies on the SE edge of a drying bank which forms the E side of Ao Pathiu. An above-water rock with **Ko Phra** 2½ cables NE of it, lies close off the NW extremity of Ko Iang, and another islet lies 2½ cables N of the SW side of Ko Iang.

4.77

Laem Chong Phra is the S extremity of a peninsula of which **Laem Yai** (10° 54′ N, 99° 31′ E), 2½ miles NNE, is the N extremity. Laem Yai is a remarkable craggy headland which rises to an elevation of 301 m, ½ mile inland.

Laem Yai to Prachuap Khiri Khan

4.78

Ko Thalu (11° 04′ N, 99° 34′ E) is a flat-topped island, 89 m high. Several islets and dangers lie between Ko Thalu and the mainland.

Laem Mae Ramphung lies 6½ miles N of Ko Thalu and is the S extremity of a peninsula which rises to an elevation of 231 m. The coast W of this peninsula is low.

Laem Mae Ramphung Light-structure is a white metal framework structure, situated 9 cables NE of the point.

An islet lies close offshore on the N side of the promontory of Laem Mae Ramphung.

4.79

An inlet is situated 10 miles N of Laem Mae Ramphung which gives access to **Ban Krut. Ko Ramra,** an islet 7 m high, lies 3 miles NNE of this inlet and 2½ cables offshore. **Hin Krut,** awash, an extension of the coastal reef lies 1 mile S of Ko Ramra. **Laem Kum** is a rocky point 4 miles NNE of Ko Ramra (11° 24′ N, 99° 37′ E).

Amphoe Thap Sakae, a village of considerable size lies at the mouth of **Khlong Thap Sakae,** 1½ miles N of Laem Kum.

4.80

A group of conical hills, the highest of which has an elevation of 231 m, lies W of Ko Ramra and 1¼ miles inland. **Khao Chakra,** the N of these hills is 218 m high. **Khao Noi,** the N summit of which has an elevation of 165 m, lies 3 miles inland from Laem Kum.

4.81

Between Laem Kum (11° 28′ N, 99° 38′ E) and a hilly promontory 19½ miles NNE, the coast is low and wooded. **Ko Chan,** 62 m (205 ft) high, lies 12½ miles NE of Laem Kum and 4 miles offshore.

Hin Kong Nok, Hin Chuang and **Hin Kong Nai** are rocks awash lying within 1 mile of the coast NW of Ko Chan.

Khao Luang, a prominent mountain summit, 1251 m high, lies 7 miles inland and 12 miles W of Ko Chan.

Khao Khlong Wan (11° 45′ N, 99° 48′ E) is a remarkable rocky horn with an elevation of 250 m, and is the summit of the promontory 19½ miles NNE of Laem Kum.

Hills extend 1 mile SE from Khao Khlong Wan towards the end of the promontory. Close W of these hills is a small bay, at the head of which lies the entrance to **Khlong Wan,** a small creek which runs along the W side of Khao Khlong Wan.

Charts 3964, 3965

Ko Phang, with an elevation of 64 m, lies 2½ miles SSW of Khao Khlong Wan and on the SE edge of the coastal bank 1¾ miles offshore; **Ko Phing,** 63 m high, with a rock awash close W of it, lies ¾ mile NNE of Ko Phang.

4.82

Ao Manao is entered between the SE extremity of the promontory extending from Khao Khlong Wan, and **Khao Ruam Muak,** another remarkable horn with an elevation of 275 m, the summit of a peninsula 2½ miles N. An above water rock lies close offshore ½ mile N of the S entrance point.

Ko Luam (11° 45′ N, 99° 50′ E), with elevation of 122 m, lies in the approach to Ao Manao 1¾ miles NE of the S entrance point of the bay. **Ko E-an,** 82 m high, lies inside the entrance to the bay, 1 mile WNW of Ko Luam.

There is a military aeronautical station at the N end of Ao Manao.

Prachuap Khiri Khan

4.83

Changwat Prachuap Khiri Khan lies at the head of a shallow bay and is entered between Khao Ruam Muak (11° 47′ N, 99° 49′ E) and the S end of a promontory 2¾ miles NNE, on which stands **Khao Mong Lai,** a summit with an elevation of 269 m; the sides of the hills forming this promontory fall steeply to the shore.

The shore of the bay is fringed by a drying coastal bank which consists of sand except in that part W of the N entrance point, where it consists of mud.

Khao Mon, a mountain summit with an elevation of 627 m, is situated 8 miles WNW of the town.

A rock awash, lies 8 cables E of Khao Ruam Muak. Three islets lie on the edge of the coastal bank N of Khao Ruam Muak; **Ko Lak,** the N islet, is 119 m high.

Ko Raet, with an elevation of 130 m, lies E of the above-mentioned three islets, separated from them by a channel 2 cables wide, in the fairway of which there are

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depths of less than 5 m (16 ft).

Ko Raet Light-structure is a white concrete tower, 4 m in height, situated on the summit of the islet.

4.84

Mined area. A dangerous area due to mines exists S and E of Prachuap Khiri Khan. See 1.5 and Appendix I.

Climatic table. See 1.131.

Chart 3965

Prachuap Khiri Khan to Mae Nam Mae Khlong

4.85

Between Khao Mong Lai (11° 50′ N, 99° 50′ E) and Ko Sattakut, 25 miles NNE, the coast is generally wooded.

Ban Kui lies at the mouth of a stream 13 miles NNE of Khao Mong Lai.

4.86

Ko Sattakut (12° 12′ N, 100° 02′ E), 151 m high, lies ½ mile NNE of the above-mentioned point with an above-water rock between them close offshore.

A **light** is exhibited from a white concrete tripod, 10 m in height, situated on the N extremity of Ko Sattakut.

Khao Samroi Yot, a remarkable range of rocky mountains, lies 5 miles inland W of Ko Sattakut. The two highest peaks, with an elevation of 604 m, are situated at the N end of the range, which at a distance, has the appearance of a serrated tableland and is unlike any other land in the Gulf of Thailand.

Ko Kolam, 196 m high, lies 2 miles NW of Ko Sattakut and ¾ mile offshore.

A rocky bank, with a depth of 2·1 m (7 ft) over it, near its outer edge, extends 2 miles offshore, 8½ miles N of Ko Sattakut. **Mae Nam Pran Buri** discharges into the sea 12½ miles N of Ko Sattakut.

An ammunition dumping ground is centred 19 miles E of Ko Sattakut.

4.87

Ko Sadao (12° 28′ N, 100° 00′ E), 28 m high, and **Ko Khi Nok** are two islets close together, situated 3½ miles N of the mouth of Mae Nam Pran Buri and ¾ mile offshore. **Ko Sai,** 14 m high, lies ¾ mile N of Ko Sado.

Hin Sao, which dries 0·9 m (3 ft), lies 2 miles N of Ko Sai and 1 mile E of **Khao Takiap** (12° 31′ N, 99° 59′ E), 123 m high, situated on a small headland, fronted by rocks awash, which stands out prominently from the coast.

A **light** is exhibited from a white metal tripod, 7 m in height, on the headland.

4.88

Mined area. A dangerous area due to mines exists close N of Hin Sao. See 1.5 and Appendix I.

4.89

Amphoe Hua Hin, a town of considerable importance, is situated near a point 3½ miles NNW of Khao Takiap.

Hua Hin Light (12° 34′ N, 99° 58′ E) is exhibited from a black concrete column with white bands, situated on a rock 3 cables E of the point.

A pier with a T-head extends 180 m ENE from a position on the shore 6 cables NW of Hua Hin Light-structure.

Hua Hin airfield is situated close to the coast 3½ miles N of the town.

4.90

Khao Pak Pla, 468 m high, lies 8½ miles NNW of Khao Takiap. **Khao Phra Rop Tai,** 641 m high, lies 8¼ miles NNW of Khao Pak Pla. **Khao Chao Lai Yai,** 371 m high, lies 6¼ miles NE of Khao Phra Rop Tai.

4.91

Caution. On account of the banks and shallow patches extending 8 miles offshore, vessels should give this part of the coast a wide berth, and not approach it within a depth of 18 m (59 ft).

4.92

Mined area. A dangerous area due to mines exists 13 miles E of Laem Phak Bia. See 1.5 and Appendix I.

4.93

Several villages are situated along the coast between Hua Hin and Laem Phak Bia, 32 miles NNE, the most important being **Ban Cha Am,** 13 miles N of Hua Hin. Two short breakwaters extend E from the coast abreast Ban Cha Am, where there is a large cement factory and four storage silos.

Ban Hat Chao Samran is situated 26½ miles NNE of Hua Hin.

A submarine cable is landed at the village.

4.94

Laem Phak Bia (13° 02′ N, 100° 06′ E), which is low, lies 29 miles N of Hua Hin, the coast between them being wooded.

Laem Phak Bia Light-structure is a white metal framework tower, 15 m in height, situated 6 cables NNE of the point.

Ban Pak Thale is situated 7¼ miles NW of Laem Phak Bia. **Ban Laem** stands 5½ miles farther NW.

Approaches to Mae Nam Mae Klong

4.95

The mouth of **Mae Nam Mae Klong** (13° 21′ N, 100° 00′ E) which rises some 120 miles NNW, is ¼ mile wide. A bar, the depth over which is less than 0·9 m (3 ft), obstructs the entrance 3½ miles offshore, and the mouth is approached by a channel between banks of soft mud which dry and extend 2 miles offshore.

A light-buoy (safe water) is moored 10 miles SE of the entrance to the river.

Mae Klong Light-beacon (white framework structure 30 m in height) stands on the SW entrance point.

Offshore depths. Between 10 and 20 miles offshore between Laem Phak Bia and the mouth of Mae Nam Mae Klong, depths may be up to 3·7 m less than charted.

4.96

Mined area. A dangerous area due to mines exists off the entrance to Mae Nam Mae Klong. See 1.5 and Appendix I.

4.97

Changwat Samut Songkhram, 4 miles N of the entrance, is connected to the Thai railway system. A radio tower, marked by an air obstruction light, 75 m in height, stands 3 cables S of Changwat Samut Songkhram railway station.

Changwat Rat Buri is situated 19 miles above the river mouth.

Mae Nam Mae Klong is connected by **Khlong Damnoen Saduak (Dam Noen Soduk)** with Mae Nam Tha Chin and thence with Mae Nam Chao Phraya (4.103).

4.98

Between the mouth of Mae Nam Mae Klong and the mouth of Mae Nam Tha Chin, 19 miles ENE, the coast is low and wooded; it is fringed by a mud-flat extending from ¼ to 2 miles offshore. There are numerous fishing stakes in this area.

Mae Nam Tha Chin

4.99

The mouth of **Mae Nam Tha Chin** (13° 31′ N,

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100° 17′ E) is obstructed by a bar, with a depth of 0·3 m (1 ft) over it, and by numerous fishing stakes. The entrance is difficult to distinguish, as the land in the neighbourhood is low and covered with trees.

A **light** is exhibited from a white metal framework tower with a white disc daymark, 15 m in height, situated at **Ban Hua Phong** on the W side of the entrance to the river.

Changwat Samut Sakhon is connected to the Thai railway system, and stands on the left bank of the river 2 miles N of the river mouth. There is a flagstaff at the naval station, situated on the left bank 7 cables NW of the light-structure. A radio tower, 64 m in height, and marked by air obstruction lights, is situated on the right bank of the river, 3 cables NW of the railway station.

HMS *Teazer*, drawing 3·4 m, in November, 1871 near the time of the highest tides of the year, reached **Amphoe Nakhon Chai Si,** 25 miles up river.

4.100

Mined area. A dangerous area due to mines exist off the entrance to Mae Nam Tha Chin. See 1.5 and Appendix I.

4.101

Between the mouths of Mae Nam Tha Chin and Mae Nam Chao Phraya, 18 miles E, the coastal mud-bank which dries, extends ¼ to 2 miles offshore and depths of less than 10 m (33 ft) extend 11 miles offshore. There are numerous fishing stakes off this coast.

4.102

Mined area. A dangerous area due to mines exists 8½ miles S of this part of the coast. See 1.5 and Appendix I.

APPROACHES TO BANGKOK (KRUNG THEP)

Chart 999

4.103

Mae Nam Chao Phraya is entered at the head of the Gulf of Thailand between Phra Chunlachomklao (13° 32′ N, 100° 35′ E) and a point 1 mile NE. The river rises in the N part of Thailand near the frontier with Laos and is navigable by small craft for a distance of 60 miles. The city of Bangkok (Krung Thep) is situated 25 miles up river above the mouth and can be reached by all vessels that can cross the bar.

4.104

Bangkok Bar Pilot Station (13° 23′ N, 100° 36′ E), a conspicuous concrete building on a round base, stands 2 miles SE of the entrance to the buoyed channel across Bangkok Bar.

A **light** is exhibited from a metal framework tower, painted red and white in bands, standing on the pilot station: a fog signal is sounded. There is a helipad on the pilot station.

Anchorages. Bangkok Bar anchorage, the dangerous goods anchorage, the quarantine anchorage and the naval anchorage lie respectively 2½ miles SE, 4½ miles ESE, 6½ miles E and 2½ miles E of the pilot station.

Should weather be unsuitable vessels can anchor off Ko Si Chang (4.135) or, during the NE Monsoon, under the lee of Laem Sommuk (4.128). Vessels anchored outside the bar at the pilot station should provide watchmen, adequate illumination at night, and keep ladders hoisted. A police patrol boat is on duty day and night at or near the pilot station and can be contacted by visual or sound signals or by radio.

A spoil ground marked by a light-buoy (special) lies 2 miles WSW of Bangkok Bar Pilot Station.

The approach to Bangkok Bar is crowded with fishing vessels many of which carry no lights.

Pilotage is compulsory for vessels over 500 gross tons; pilots will be embarked from the pilot station, which should be closed to within a distance of 3 cables. The pilot flag is white over red horizontal. The ETA should be signalled 48, 24 and 12 hours in advance.

4.105

Tidal streams outside the bar and near the anchorage set NW on the rising tide and SE on the falling tide, attaining a rate of ¼ to 1 knot. During the NE Monsoon, the current occasionally sets W along the edge of the bank with considerable strength.

Bangkok Bar

4.106

Bangkok Bar Light-beacon (13° 27′ N, 100° 36′ E) (white metal framework tower), 7 m in height, is situated near the seaward end of the channel, 5¼ miles S of Phra Chunlachomklao Fort Flagstaff (4.113). A tide-gauge is situated at the beacon.

Extensive drying banks of mud and sand on the bar are covered with **fishing stakes,** which extend 1½ miles S from Bangkok Bar Light-beacon except in the channel. Lights are exhibited from these stakes at night.

The bar is subject to frequent changes, and extends 8 miles S from the river entrance points. The river level is highest in February, and lowest in July and August. In the vicinity of the bar the difference is about 0·5 m. Water level is also affected by the wind, S winds increasing the level. When a strong NE or E wind is blowing in the Gulf the water level will be raised; with strong W winds and heavy NW or W squalls, the in-going stream is retarded and the water level lowered.

A typhoon in the China Sea, in the neighbourhood of Mui Vung Tau (5.125) has been known to lower the water level at the bar by as much as 0·9 m (3 ft).

There is a channel about 11 miles long through the bar: it is 100 m wide in the reaches and 250 m wide on the bends. The depth in the bar channel, in 1974, was maintained at 6·1 m (20 ft), and the depth in the river fairway at 6·7 m (22 ft).

4.107

Limiting dimensions of vessels. Due to the bends in the channel and in the river, the ship-handling characteristics of a vessel over 150 m (500 ft) in length must be taken into consideration if crossing the bar with deep draught.

Vessels entering the port are restricted to a maximum length of 183 m (600 ft) and to a maximum draught of 8·2 m (27 ft). Subject to these limitations, the actual maximum draught of any vessel depends on a 'Bar Adder', which, when added to the predicted height of tide at the bar will give the maximum draught allowed.

Length of vessel	*Bar Adder*
128·4 m to 135·6 m	4·8 m
135·6 m to 143·3 m	4·6 m
143·3 m to 152·4 m	4·4 m
152·4 m to 161·5 m	4·2 m

There are no restrictions on time of entry; vessels may enter by day or by night.

4.108

The channel over the bar is marked by leading light-beacons and buoys, the positions of which are frequently changed to conform to the changes in the dredged channel through the bar.

Each leading light is exhibited from a white metal framework tower except 'H' which is exhibited from the

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top of a white water tower: front light structures have red daymarks with a white stripe, rear light-structures black daymarks with a white stripe.

Entrance light-buoy (safe water) is moored 2 miles NW of Bangkok Bar Pilot Station.

The first pair of **leading light-beacons 'A'** and **'B'** are situated on detached drying banks, with the rear beacon 'B' 2¾ miles NNE of Bangkok Bar Light-beacon. The front beacon 'A' is situated 1 mile SSW of beacon 'B'. In line bearing 034°, these two light-beacons lead over the outer part of the bar.

'A' lighted yellow pile with a red cross topmark stands on the leading line 5¾ cables SSW of 'A' leading light-beacon.

Leading light-beacons 'C' and **'D'** for the second part of the channel are of similar construction; the rear beacon 'D' is situated on the mud-flats W of the river entrance 2¾ miles SE of the flagstaff at Phra Chunlachomklao (4.113), and is 10 m in height; the front light-beacon 'C' situated 1 mile SSW of the rear beacon 'D', is 4 m in height. These two light-beacons are in line bearing 018°.

'C' lighted yellow pile with a red cross topmark stands on the leading line 5 cables SSW of 'C' leading light-beacon.

Leading light-beacons 'E' and 'F' for the third part of the bar channel are also of similar construction; the rear beacon 'F' is situated on the right bank of the river 1¾ miles NE of light-beacon 'D', and is 12 m in height. The front beacon 'E' is situated on the mud-flats E of the dredged channel 1 mile SSW of the rear beacon 'F'. In line these two beacons bear 030°.

East and West shoulder light-beacons stand 50 m each side of leading light-beacons 'A' to 'F' at right angles to the direction of the channel. Each pair in line indicates the E and W limits of the channel. The structures of the shoulder light-beacons are white framework towers on wooden or concrete bases with daymarks:

Front	Diamond
Rear	Circle
East	Black on a white ground
West	Red on a white ground.

4.109

Leading light-beacon I stands 8 cables SE of light-beacon E: these two leading light-beacons in line bearing 126½° astern lead into the river entrance.

Leading light-beacons G and H are situated on the W bank 1 mile NW of Phra Chunlachomklao Fort: in line bearing 306½° ahead they lead along the same reach as leading light-beacons E and I into the river entrance.

4.110

In addition to the leading light-beacons, the dredged channel through the bar and the fairway beyond are marked by starboard and port hand pillar light-buoys in accordance with the IALA Maritime Buoyage System (Region A).

4.111

Distance beacons. A series of beacons mark the distance in kilometres between Bangkok Bar Light-beacon and Phra Chunlachomklao (4.113). These beacons (square in shape; red bands) stand on the port side of, and clear of the fairway. They are numbered from 14 to zero: zero beacon stands 3½ cables 052° from the flagstaff on Phra Chunlachomklao Fort.

4.112

Tidal streams in the channel over the bar run in the direction of the channel. Maximum rates in normal conditions at distances inward from Bangkok Bar Light-beacon (4.106) are as follows:

Distance	*Rate*
½ mile	½ to 1 knot
4 miles	1 to 2 knots
5¾ miles	1 to 2 knots
6½ miles	1 to 3 knots

The flow at the first two or three stations may be affected by the currents at sea outside the bar.

River within the bar

4.113

Phra Chunlachomklao (13° 32′ N, 100° 35′ E), where there is a fort with a flagstaff, is situated on the W entrance point of the river.

There is a naval dockyard at Phra Chunlachomklao. Jetties on which there are berths for six small vessels extend up and down river from the entrance to a basin. Within the basin there are two dry docks.

A salt wharf is situated on the W bank 1½ miles within the river entrance: there are two anchor berths for 152 m long vessels off the wharf.

Changwat Samut Prakan is situated on the E bank of the river 3½ miles NNE of Phra Chunlachomklao.

An islet, on which is **Phisua Samut,** lies close off the W bank of the river abreast Samut Prakan. A **submarine cable,** marked at each end by a beacon (post; white disc topmark), crosses the river between this islet and Samut Prakan.

A prominent water-tower stands in the S part of Samut Prakan.

There are four anchor berths for 91 m long vessels off Samut Prakan.

Customs and quarantine. Vessels must stop at Changwat Samut Prakan to embark a Customs Officer. There is also a quarantine station here.

Supplies. Fresh provisions may be obtained by vessels at Samut Prakan.

4.114

A factory with a prominent chimney is situated on the S side of the river at **Bang Pla Kot,** on the W side of the entrance to a creek 2 miles WNW of the mouth of **Khlong Maha Wong** (13° 36′·1 N, 100° 36′·0 E), close N of Samut Prakan.

There are three anchor berths off Bang Pla Kot for one 172 m long vessel and two 152 m long vessels.

A grain silo is situated on the W side of the entrance to Khlong Ban Kakwain 3 miles WNW of the mouth of Khlong Maha Wong.

A wharf, 183 m long, equipped with elevators and capable of berthing ocean-going vessels, fronts the river near the silo. An **overhead power cable,** with a vertical clearance of 70 m, spans the river in a NNE direction from the vicinity of the wharf.

Five chimneys of a power station standing on the NE bank of the river are conspicuous.

Nos 25 and 1 Light-beacons (W cardinal) stand near the NE bank of the river 3½ cables and 11 cables NE respectively of the overhead power cable; three lighted dolphins are situated between the light-beacons.

4.115

Amphoe Phra Pradaeng stands on the W bank, 5½ miles above Samut Prakan. **Khlong Lat Luang,** which is only suitable for boats, is entered ½ mile S of Amphoe Phra Pradaeng; it leads to the river 1½ miles N, thus cutting off a large bend. This canal is closed during the rains.

An **overhead power cable,** with a vertical clearance

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of 51 m, spans the river in an ESE direction from a position on the W bank of the river ½ mile N of the S entrance to Khlong Lat Luang.

A flour mill associated with a wharf, 152 m long, is situated on the S bank of the river at **Samrong,** 1¼ miles ESE of Amphoe Phra Pradaeng. A tower and a flagstaff stand near this wharf; a red neon sign is exhibited from the tower and a red light from the flagstaff.

At **Bang Chak** on the E bank, there is an anchorage area reserved for Thai Naval vessels, close S of the S limit of Zone II (4.117).

The river banks are lined with trees in the lower portions of the river.

4.116

Tidal streams within the bar. The flow is the resultant of the tidal streams setting in and out of the river and of the current down the river; it sets in the direction of the channel. Maximum rates in normal conditions are as follows:

Position	*Rate*
Samut Prakan	1 to 2 knots
13° 40′·8 N, 100° 31′·4 E	1 to 2½ knots
13° 42′·0 N, 100° 29′·8 E	2 to 2½ knots
13° 42′·7 N, 100° 30′·8 E	2 to 2½ knots
13° 44′·0 N, 100° 30′·8 E	2 to 3½ knots
Grand Palace	1½ to 2 knots
13° 46′·0 N, 100° 30′·0 E	1½ to 2½ knots

At Bangkok the tidal stream is usually weaker than the river current from September to December; during this period the flow is almost continuously towards the sea. Occasionally during the rainy season it may reach a rate of 4 to 5 knots, when a quantity of floating matter is brought down river.

Bangkok New Harbour

4.117

Bangkok New Harbour (13° 42′ N, 100° 34′ E) is situated 3 miles NE of Phra Pradaeng within **Zone II,** which extends from position 13° 41′·2 N, 100° 35′·6 E to the expressway bridge (4.118). The limits of the zone are marked by obelisks.

East Quay, the container terminal, is situated on the NE bank close within the S limit of Zone II. There are six berths for vessels up to 172 m long. The movement of containers is by mobile cranes. Ro-Ro and bulk cargoes and passenger vessels can also be accommodated.

Klongtoi Wharf, on the N side of the river W of the container terminal, can accommodate 10 vessels up to 172 m long drawing 8·2 m. Berths are used for the import of general cargoes.

Between Klongtoi Wharf and East Quay is the entrance to Khlong Phra Khanong where there are berths for lighters.

Seven vessels can be accommodated on a row of dolphins on the S side of the river opposite Klongtoi Wharf. Export cargoes are loaded by lighter.

The area off Klongtoi Wharf and the dolphins is maintained at a depth of 10 m.

There are five tanker berths on the N and W banks of the river upstream from Klongtoi Wharf. Tankers up to 172 m long drawing 7·9 m can be accommodated.

Tidal and berthing signals are displayed from a flagstaff situated on the E end of Klongtoi Wharf, at the mouth of Khlong Phra Khanong. Vessels proposing to berth in the harbour must notify the Port Director 24 hours beforehand, at the same time requesting a berth; vessels leaving the harbour must notify the Port Director 6 hours beforehand.

There are berths for six vessels 137 m long at mooring buoys between 7 cables below and 4 cables above the expressway bridge (4.118).

Bangkok (Krung Thep) Harbour

4.118

Bangkok Harbour, fronting the city of Bangkok, lies within **Zone I** which extends from the expressway bridge (below) 10 miles upstream to position 13° 47′·6 N, 100° 31′·0 E.

An expressway bridge (13° 40′·9 N, 100° 31′·3 E), with a vertical clearance of 42 m, spans the river at the junction of Zone I and Zone II. Krung Thep Bridge with a movable central span crosses the river 2½ miles above the expressway bridge: Sathon Bridge crosses the river 1¾ miles up river from Krung Thep Bridge: and Phra Phuttha Yot Fa Bridge crosses the river 1¾ miles farther up river.

An overhead power cable with a vertical clearance of 36 m spans the river, 1 cable E of Phra Phuttha Yot Fa Bridge.

4.119

Bangkok City (13° 45′ N, 100° 30′ E), the Thai name for which is **Krung Thep,** is the capital of the Kingdom of Thailand and is also the capital of **Changwat Phra Nakhon;** it had a population of more than 5 million in 1987. Bangkok lies on the E side of the river, occupying a river frontage of about 3 miles; it is traversed by canals and surrounded by battlements flanked by towers in places. Here are the Royal Palaces and most of the public offices. To the S of the city proper is the commercial quarter, where are some of the Legations and Consulates. The Grand Palace and the temples are magnificent and on a large scale, the architecture being of a kind peculiar to the country.

Trade. The principal exports are rice, rubber and teak; the chief imports are manufactured articles, machinery and processed goods.

Wharves. There are numerous wharves on both sides of the river between the S limit of Zone I and Phra Phuttha Yot Fa Bridge. Their numbers are shown on the chart.

Above Phra Phuttha Yot Fa Bridge there is a naval dockyard on the W side of the river.

4.120

Anchorages. Vessels normally berth alongside the wharves where there is sufficient depth for all vessels able to cross the bar. Vessels not berthed alongside moor in mid-river.

Prohibited anchorages. Anchorage is prohibited in the bends of the river and near the line of the submarine cables which cross the river. The positions of these cables are marked by signboards (with an arrow pointing in the direction of the cable) on both sides of the river. Behind these boards are white discs on posts; the post and board in line indicate the direction of the cable.

The stretch of harbour above the Grand Palace is normally reserved for Thai Naval vessels. Five mooring buoys, reserved for Thai Naval vessels are laid between the palace and Krung Thon Bridge (13° 46′·8 N, 100° 30′·4 E).

4.121

Regulations. The details of the harbour regulations will be found in the copy of the navigation laws supplied on arrival (1.20). Vessels are berthed by the Harbour Master, and must not shift berth without permission, and when requiring a berth or to shift berth must hoist flag 'T' of International Code of Signals, when the Harbour Master will attend.

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The harbour fairway is divided into two parts, the E and the W, by the vessels moored in mid-stream. The E or main fairway is to be used by all vessels of more than 50 tons and the W fairway by all others.

A steamer dropping down within the harbour limits shall display flag 'G' of the International Code forward; and when another vessel is coming with the tidal stream, shall keep in mid-stream, or as close as possible to the vessels moored in mid-stream, until she has been passed.

Caution. Sea suction intakes are liable to be blocked by vegetation and floating rubbish.

4.122

Signals. A vessel requiring assistance shall use the following groups from the *International Code of Signals*:

DQ ... I am on fire

ST ... I require a police boat

by day hoisting flags and at night flashing Morse Code groups. The groups are to be followed by Morse Code 'X' continuously on the ship's whistle.

Group ST should only be used for disorder, serious violence or robbery.

In addition the vessel should radio her name, location and appropriate two lettered group repeated in English.

When a vessel is being undocked or leaving a slipway, a black ball is displayed at the dock or slipway entrance, and at night a red light is exibited.

4.123

Facilities. Eight tugs of 1000 to 1200 hp are available to assist in berthing. They are also equipped for fire-fighting.

Minor repairs to hull and machinery can be undertaken. Repairs to radar, VHF and radio equipment can be undertaken.

There are two floating cranes of 125 ton capacity.

Mobile cranes up to 165 tons capacity are available.

The largest dry dock is 137 m long. There are several smaller dry docks.

There are two hospitals.

Deratting exemption certificates can be issued. See 1.92.

Supplies. All types of fuel oil are available and can be supplied by pipeline at Klongtoi Wharf (13° 42′ N, 100° 33′ E) or by lighters. Fresh water can be supplied by shore line or by lighters.

Stores and provisions are abundant.

Communications. There is frequent communication by sea with Hong Kong, Singapore, and ports in the Gulf of Thailand and the E coast of Peninsular Malaysia.

Bangkok International Airport is situated 13 miles N of Klongtoi Wharf.

There are a coast radio station and a port radio station at Bangkok.

A service of motor boats runs as a ferry from the tram terminus at Bangkok to Phra Pradaeng. These boats will stop off any vessel to pick up or put down passengers, the call flag being a red pendant with three white crosses horizontally disposed.

Diplomatic representation. The British Embassy is in Bangkok. See 1.93.

EAST SHORE OF GULF OF THAILAND

Chart 2414

4.124

The E shore of the Gulf of Thailand consists of part of the coast of Thailand, the coast of Cambodia, and the SW coast of Vietnam. The coast is much indented and numerous rivers discharge through it. There are many off-lying islands and dangers.

Tidal streams along the E shore of the Gulf of Thailand, N of Laem Samae San (4.168) set N when the tide is rising on Bangkok Bar and S when it is falling there.

Chart 1046

Mae Nam Chao Phraya to Ko Si Chang

4.125

Between the mouth of Mae Nam Chao Phraya (4.103) and the mouth of Mae Nam Bang Pakong (13° 28′ N, 100° 58′ E), 23 miles E, the coast is low and bordered with mangroves and a shallow coastal bank. Numerous fishing stakes are found on the coastal bank which extends up to 9 miles offshore.

Khlong Dan discharges into the gulf 13 miles E of the entrance to Mae Nam Chao Phraya. **Ban Khlong Dan** stands on the E bank of the river ½ mile inland.

Khlong Dan Light is exhibited from a red and white concrete tripod, 15 m in height, standing on the W side of the river close within the entrance.

4.126

Mae Nam Bang Pakong is entered between a point on the W side of the river, on which stands a conspicuous tree, 8¼ miles E of Ban Khlong Ban, and **Laem Talat Nok,** 1 mile E. The river is reported to be navigable by small craft as far as **Changwat Chachoengsao** situated 15 miles from the mouth.

The banks of the river near its mouth and the coast for 4 miles both S and W consist of mangrove. Mud-banks which dry or nearly dry, extend up to 3 miles offshore S of Laem Talat Nok and up to 2 miles offshore W of the W entrance point. The bar is nearly 4 miles wide, with a least depth of 0·3 m (1 ft). There are numerous fishing stakes in the approach to the river.

Pak Mae Nam Bang Pakong Light-beacon (white metal pile with black bands), 10 m in height, is situated at Laem Talat Nok.

A light-buoy (safe water) is moored 6½ miles WSW of Laem Talat Nok.

Within the bar, red **beacons** mark the W side of the channel and white beacons the E side.

A swing bridge crosses the river 1 mile above Ban Pak Pakong, 2¼ miles NNE of Laem Talat Nok.

4.127

Khao Phra Bat, 146 m high, with a pagoda on its summit, is situated 5 miles SSE of Laem Talat Nok and is at the N end of the high land on the E side of Gulf of Thailand.

4.128

Changwat Chon Buri (13° 22′ N, 100° 59′ E), situated 1 mile SW of Khao Phra Bat, is a town of considerable importance, but can only be reached from seaward at high water. There is a landing place at the town.

Ang Sila stands 3½ miles SW of Chon Buri and forms the NE entrance point of a small bay, at the SW end of which is Laem Samuk. **Anchorage** can be obtained by small vessels with local knowledge off Ang Sila, in a depth of 5 m (16 ft), 1 mile offshore.

Laem Samuk (13° 19′ N, 100° 54′ E) is 74 m high and appears as an island.

Tidal streams 1 mile N of Laem Samuk set NE towards the mouth of Mae Nam Bang Pakong (4.126) on the rising tide.

Charts 1046, 986

4.129

Between Laem Samuk and Laem Krabang (4.144)

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14½ miles S, there is an indentation in the coast; the S part of this indentation consists of shallow sandy bays separated by rocky points.

A range of hills lies inland along this stretch of coast. **Khao Khieo,** 797 m high, situated 9 miles ESE of Laem Samuk, is the highest of the range.

A flare burns at the top of a chimney 3 cables E of **Khao Pho Bai** (13° 07′ N, 100° 54′ E), 200 m high, situated 13 miles SW of Khao Khieo.

4.130

Between Laem Samuk and Ko Loi, 8½ miles S, the shores of the bay are low, wooded and fringed by a bank with depths of less than 5 m (16 ft) extending 2 miles offshore in places.

Bang Saen, where there is a T-headed pier, is a small seaside resort situated about 2 miles SSE of Laem Samuk. Landing can be effected at the pier. Small vessels can obtain anchorage off Bang Saen in a depth of 7 m (23 ft).

Ban Bang Phra is situated 2½ miles NNE of Ko Loi (13° 10′ N, 100° 55′ E). An extensive reservoir with hot springs, is situated 1½ miles inland from Ban Bang Phra.

Chart 986

4.131

Ko Loi, on which stands a pagoda, is connected to the coast SE by a pier 4 cables in length, which projects from the shore at the N end of **Amphoe Si Racha.** Between this pier and **Laem Ban Nai,** 9 cables SW, numerous small piers project from the coast.

Anchorage for small vessels with local knowledge may be obtained in a depth of 5 m (16 ft) with Ko Loi bearing 080° distant ½ mile.

Ao Udom Pier extends 1½ miles from the shore 6 cables SW of Laem Ban Nai. The berth at the pierhead is available to vessels up to 250 m long drawing 11 m and is used mainly for loading tapioca.

Ban Ao Udom, 3 miles SSW of Si Racha, is situated at the head of Ao Udom, a bay N of Khao Pho Bai (4.129).

Sriracha Oil Terminal

4.132

Sriracha (Si Racha) Oil Terminal (13° 07′ N, 100° 53′ E) is situated SW of Ao Udom. Offshore tanker berths at which crude oil is discharged and barge jetties at which petroleum products are loaded into coasters of up to 5000 dwt for transport to depots and refineries are enclosed within a restricted area extending up to 1½ miles offshore.

Landmarks. A conspicuous framework radio tower, painted red and white in bands, with two accommodation blocks close to it, stands on the top of a hill 1 mile SW of Khao Pho Bai (4.129). There is a dish aerial 1 mile E of Khao Pho Bai.

ETA should be signalled 3 days before arrival and confirmed 24 hours before.

A **pilot** and a berthing master will board 3¾ miles NNW or 2½ miles WSW of Laem Krabang (13° 05′ N, 100° 53′ E) to assist in berthing. They can be contacted on VHF radio when within 30 miles.

Anchorage may be obtained SW of the restricted area within a radius of 1 mile of position 13° 04′·8 N, 100° 51′·0 E in a depth of 22 m (12 fm), good holding ground, mud and sand. Anchoring within the restricted area is prohibited.

4.133

Directions. The recommended approach for deep draught vessels from S is to make a landfall on Ko Khram (4.153), thence from a position 1½ miles W of that island, steer 360° to pass 2 miles E of Ko Rin (4.149) and 1¾ miles W of Ko Lan (4.147). From the latter position, vessels were recommended in 1979 to steer for position 13° 02′·2 N, 100° 46′·8 E with Ko Thai Ta Mun Lighthouse (4.143) ahead bearing 020°; thence to steer across the bar for position 13° 04′·7 N, 100° 51′·0 E with the conspicuous radio tower ahead bearing approximately 056°; this track was reported to carry a least depth of 16·9 m (55½ ft) on the bar; a 15·5 m (51 ft) shoal was reported to lie close N of the track. The **tidal stream** sets N with a rising tide.

Vessels drawing more than 15·2 m (50 ft) should cross the bar at a state of the tide which will ensure adequate under-keel clearance.

Numerous small fishing vessels may be encountered on the above approach route and occasional heavy squalls may occur.

4.133a

Berths. From N to S the berths at Sriracha Oil Terminal are:

TORC (Thai Oil Refining Company) **Sea Berth** consists of six mooring buoys at the seaward end of a pipeline. A tanker 274 m long drawing 14·0 m can be accommodated. Lights are shown from the two seaward mooring buoys. **TORC Jetty** lies on the pipeline ½ mile from the shore.

PTT Jetty has its head 1¼ cables offshore. A pipeline with mooring buoys at its extremity extends 4 cables NW from the jetty head. Two light-buoys are moored NW of the end of the pipeline. A tanker 280 m long drawing 15·5 m can be accommodated at this berth.

Esso Sea Berth consists of six mooring buoys at the seaward end of a pipeline: the SW mooring buoy is lit. A tanker 274 m long drawing 15·3 m can be accommodated. A platform flanked by dolphins is situated on the pipeline 4½ cables from the shore and **Esso Jetty** also on the pipeline is 1¼ cables from the shore.

PTT Sea Berth consists of a platform, flanked by dolphins and mooring buoys, at the end of a pipeline. A tanker 214 m long drawing 13·7 m can be accommodated.

Vessels may berth bows N or S at all berths depending on the tide and weather. Tankers berth in daytime only.

Density: 1·021 gms/cm³.

A hulk is moored 1 mile offshore close N of the restricted area.

A gas separation plant is situated ¾ mile NNE of Laem Krabang (4.144): a jetty extends 7 cables WNW from the plant. No 1 Berth, which accommodates vessels up to 100 000 dwt, is situated at the head of the jetty, and Nos 2 and 3 Berths, which accommodate vessels up to 5000 and 2000 dwt respectively, are situated on a spur on the N side of the jetty.

Facilities. Minor repairs only can be undertaken.

Two tugs are in the area, but their use when berthing is discouraged.

Hospital facilities are available.

Supplies. Fresh water can be supplied by barge in emergency only; 48 hours' notice is required. Fuel oil and diesel fuel are also available by barge, in an emergency only, at the anchorage; 48 hours' notice is required. Fresh provisions are obtainable.

Ko Si Chang

4.134

Ko Si Chang (13° 09′ N, 100° 49′ E) is the largest of a group of islands lying 4 miles off the mainland between Ko Loi and Laem Krabang (4.144). **Khao Yai** attains an elevation of 191 m, 5½ cables S of the N extremity. In the middle of the S part of the island there is a wooded table

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land, 58 m high, which is surrounded by hills rising steeply from the coast.

Laem Khao Khat is a point on the W coast of the island, 6 cables SW of Khao Yai; **Laem Tham Phang,** 1 mile further S, a narrow promontory the extremity of which rises to an elevation of 32 m forms the N entrance point of **Ao Tham Phang.**

Ko Yai Thao, 18 m high, lies on the reef ½ cable off the S extremity of the island. **Hin Ta Sin,** which dries 2·4 m (8 ft), lies 7 cables NE of Ko Yai Thao and 1 cable offshore.

Laem Wang (13° 09′ N, 100° 49′ E), at the extremity of which is a prominent obelisk, is a narrow promontory on the E side of Ko Si Chang, 1½ miles NNE of its S extremity. **Assadang Pier,** 90 m long, is situated on the N side of Laem Wang, 1¼ cables W of its outer extremity. A **light** is exhibited from a white masonry column situated on Laem Wang.

4.135

Ko Si Chang Transhipment Area, the limits of which are shown on the chart, is situated off the N and NE sides of the island. Ocean-going vessels complete their loading in this area after leaving Bangkok, or discharge some of their cargo before proceeding there. Cargo can be brought out to, or taken away from such vessels in lighters with which Bangkok is well supplied.

For maximum draught of vessels crossing the bar of Mae Nam Chao Phraya see 4.107.

4.136

Mined area. A dangerous area due to mines exists round Ko Si Chang. See 1.5 and Appendix I.

4.137

A rock, with a depth of 0·6 m (2 ft) over it, lies 6 cables NNW of Laem Wang. It is marked on its E side by a buoy (E cardinal).

Ban Tha Thewawong, where there is a pier and a flagstaff near the custom house, extends along the shore of a bay 8½ cables NW of Laem Wang. **Ban Phanu Rangsi** is situated 3½ cables farther N.

4.138

Hin Sampayu, fringed by a reef, lies 6 cables NNW of Ko Si Chang. A **light** is exhibited from a white masonry tower, 5 m in height, situated on the rock.

Hin Kong Nok, nearly awash, lies 6 cables ENE of Hin Sampayu. It is marked on its W side by a light-buoy (W cardinal).

4.139

Ko Kham Yai (13° 10′ N, 100° 50′ E), 61 m high, is fringed by a reef and lies 8½ cables NNE of Laem Wang. An obelisk, standing on the N extremity of Ko Kham Yai is prominent from N. **Hin Kong Nai,** which partly dries, lies 3½ cables from the obelisk. A light-buoy (N cardinal) is moored 1¼ cables NNW of Hin Kong Nai.

Ko Kham Noi, 19 m high, and fringed by a narrow reef, lies 2¾ cables NE of Ko Kham Yai. **Ko Prong,** 8 m high, wooded and fringed by a narrow reef, lies 3¼ cables E of Ko Khan Yai. There is a pier at the SE end of Ko Prong.

Ko Ran Dok Mai, 14 m high and fringed by a narrow reef, lies 8 cables E of Laem Wang.

A dangerous wreck, marked on its NW side, by two light-buoys (yellow and black) lies ¾ mile NE of Ko Ran Dok Mai.

4.140

Measured distance. A measured distance of 1843·7 m (6049 ft) exists E of Ko Prong and Ko Ran Dok Mai, with a running course of 010°. The N limit is marked by a pair of beacons, in line bearing 280°, the rear beacon situated on the E side of Ko Kham Yai and the front beacon on Ko Prong 4 cables ESE. The S limit is marked by a pair of beacons, in line bearing 280° situated on Ko Si Chang 3 and 4 cables WNW of Laem Wang.

4.141

Anchorages. During the NE Monsoon, the best anchorage for small vessels with local knowledge is in a depth of over 5 m (16 ft) with the S extremity of Ko Kham Yai bearing 045°; larger vessels generally anchor in a depth of 10 m (33 ft) or over, with the same point bearing 315°.

During the SW Monsoon small vessels with local knowledge generally anchor between a line drawn from the NE extremity of Ko Si Chang to the N extremity of Ko Kham Yai, and a line drawn from the SW extremity of Ko Kham Yai to the point on Ko Si Chang 6 cables SW; larger vessels can anchor in a depth of 9 m (30 ft) with the NE extremity of Ko Si Chang bearing 253° distant 1¼ miles.

Anchorage can be obtained with the NE extremity of Ko Si Chang bearing 245° distant 2 miles, with good holding ground.

Anchorage, well sheltered in both monsoons, may be obtained between Laem Wang and Ko Ran Dok Mai in depths of 9 to 16 m (30 to 52 ft).

4.142

Landing on Ko Si Chang can be effected at Assadang Pier (4.134) or at the pier at Ban Tha Thewawong, but at the latter the landing is not so good.

Supplies. Fresh fruit and eggs can be obtained locally.

4.143

Ko Khangkhao lies 2½ cables S of Ko Yai Thao (4.134); it is 76 m high and is fringed by a narrow reef and a rocky bank.

Ko Thai Ta Mun, 24 m high, is joined to the S end of Ko Khangkhao by a narrow reef, and is the S islet of the group. A **light** is exhibited from a white concrete pile structure, 7 m in height, situated on the summit of Ko Thai Ta Mun.

Chart 1046

Laem Krabang to Ko Khram

4.144

Between **Laem Krabang** (13° 05′ N, 100° 53′ E), a point which rises steeply to an elevation of 183 m, and Laem Phatthaya, 9 miles S, there is a shallow bay, the shore of which is low and wooded.

It is reported (1987) that a new deep water port is to be constructed at Laem Krabang in order to relieve overcrowding at Bangkok. A 600 m long wharf will accommodate container and general cargo vessels of up to 120 000 dwt.

Laem Khwan lies 6½ miles S of Laem Krabang, with **Ko Chun,** low and rocky, 2 miles farther SW.

Ko Chun Light-structure is a white concrete tower, 4 m in height.

4.145

Laem Phatthaya consists of a number of low rocky bluffs; a hill, 97 m high, lies 8 cables within the point. A radio tower, marked by red and white obstruction lights, stands on the hill.

4.146

A chain of islets and dangers extends S and SW from Laem Krabang, at distances of up to 12½ miles offshore. **Ko Nok** (13° 01′ N, 100° 49′ E) lies 4½ miles SW of Laem Krabang. A **light** is exhibited from a white framework tower, situated on Ko Nok.

4.147

Ko Lan (12° 55′ N, 100° 48′ E), 204 m high, lies 4 miles W of Laem Phatthaya. **Ban Ko Lan** is situated on

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the E side of the island. **Ko Sak,** 32 m high, lies ½ mile N of Ko Lan.

Good **anchorage** in the SW Monsoon may be found for vessels with local knowledge, close under the NE side of Ko Lan.

Ko Khrok, 40 m high, is situated 1 mile ESE from the N extremity of Ko Lan. **Hin Ko Lan,** awash, lies midway between Ko Khrok and Laem Phatthaya and is marked on its NE side by a buoy (E cardinal). **Hin Phra Nang,** a rock with a depth of 2·7 m over it, lies ½ mile S of Ko Khrok and is marked on its NW side by a buoy (N cardinal).

The bank N of Ko Khrok, Hin Phra Nang and Hin Ko Lan are covered by the red sector of Ko Chun Light (4.144) between the bearings of 044° and 094°.

4.148

Ko Phai, with an elevation of 142 m at its S end, lies 5 miles WNW of Ko Lan.

A **light** is exhibited from a white concrete tower, 13 m in height, situated near the middle of Ko Phai.

Ko Luam, the W islet of the group, has an elevation of 142 m, and lies 1 mile NW of Ko Phai. Between Ko Luam and Ko Phai there is a narrow channel on the W side of which is **Ko Luam Noi,** 18 m high, ¼ mile E of Ko Luam. The S and E sides of Ko Luam are steep-to; the islet is bold and cliffy, its summit is dome-shaped and forms one of the principal landmarks at the head of the Gulf of Thailand. There are fishing stakes 5 miles NE and 5 miles W of the island.

Ko Hu Chang, 10 m high, lies 6 cables S of Ko Phai, with **Ko Klung Badan,** 42 m high, ½ mile farther S. **Ko Man Wichai,** 52 m high, lies 1¼ miles S of Ko Klung Badan.

4.149

Ko Rin (12° 48′ N, 100° 42′ E), 107 m high, lies 4 miles SSE of Ko Man Wichai. **Hin Khao,** 12 m high, lies ¾ mile NE of Ko Rin with another above-water rock midway between them. **Hin Ton Mai,** 13 m high, with an above-water rock close N of it, lies ½ mile S of Ko Rin.

4.150

Mined area. A dangerous area due to mines exists in the area of Ko Rin. See 1.5 and Appendix I.

4.151

Ko Rang Kwian, 7 m high, lies 5½ miles E of Ko Rin. A **light** is exhibited from a white concrete pile, 7 m in height, situated on Ko Rang Kwian.

Between Laem Phatthaya (4.145) and **Laem Kham,** 9½ miles S, there is a bay, the land around which is low and wooded, and depths of less than 10 m (33 ft) extend offshore beyond the line joining the two entrance points.

Numerous fishing stakes will be found in the bay during the NE Monsoon from October to March.

Chart 3727

4.152

Ko Klet Kaeo (12° 46′ N, 100° 51′ E), 73 m high, is separated from the mainland by **Chong Klet Kaeo.**

Ko Khram

4.153

Ko Khram lies with **Laem Kai Ti** its NE extremity 3¼ miles SW of Ko Klet Kaeo; it is 232 m high near its S end, and is separated from the mainland by **Chong Khram.**

Ao Phutsa Wan lies on the NW side of Ko Khram; foul ground, over which there is a strong tidal stream or current, extends 1½ cables from the W entrance point. The depths in the bay are less than 5 m (16 ft); the coast at the head of the bay is low and wooded.

Temporary **anchorage** for small vessels may be obtained in Ao Phutsa Wan.

Ko Khram Noi, 36 m high, lies on a rocky bank ½ mile N of Laem Kai Ti. An above-water rock lies close NNW of Ko Khram Noi. A mooring-buoy lies 4½ cables E of Laem Kai Ti.

Chong Khram

4.154

Chong Khram is entered from N between Ko Klet Kaeo (4.152) and Ko Khram Noi.

On the W side of the strait, a reef extends 4 cables offshore from the NE side of Ko Khram. The SE side of Ko Khram is fringed by a reef which extends 2½ cables offshore, and a bank, with depths of 5·5 to 11·0 m (18 to 36 ft) over it extends 1¼ miles SE. **Hin Yai** and **Hin Ta,** 3½ and 4 m high, respectively, lie 3 cables SE and 4 cables E of the S extremity of Ko Khram. A dangerous rock, with a depth of 1·6 m over it, lies 3½ cables E of Hin Yai.

Hin Wua Lai Khwai Wing (12° 42′ N, 100° 49′ E), which partly dries, lies ¾ mile NE of **Laem Tham Phang,** the E extremity of Ko Khram.

Hin Khi Pla, an islet 10 m high, lies 1 mile S of Hin Wua Lai Khwai Wing; an islet, 3½ m high, lies 2½ cables W of Hin Khi Pla. **Hin Kaeo Samut,** with a depth of 1·2 m over it, lies 4 cables SE of Hin Khi Pla, with **Hin Khi Sua** (12° 41′ N, 100° 50′ E) lying on a reef, 4 cables ESE of it.

A **light** is exhibited from a white concrete tower with black bands, situated on Hin Khi Sua.

Ko I Ra, 46 m high, lies 2 cables SW of Hin Khi Sua, near the middle of the fairway of the strait and 2½ miles E of the S extremity of Ko Khram.

4.155

On the E side of Chong Khram, from Chong Klet Kaeo (4.152) to Laem Hat So, the N entrance point of Ao Thung Prong, 3¼ miles S, the coast is composed of high rocky bluffs, with sandy bays between.

Map Pier, with a T-head, 135 m long and a depth of 10·4 m (34 ft) alongside, projects in a SW direction for ½ cable from Laem Hat So; the length of the berth between dolphins is 153 m.

Delong Pier projects W from the coast 2¾ cables N of Map Pier; this pier has a length of 183 m and a depth of 12·8 m (42 ft) alongside.

These two piers constitute a First Port of Entry. There are no special harbour regulations, but customs inspection is very strict. Due to the strong tidal streams, reported to attain as much as from 6 to 8 knots in the vicinity of the piers, it is advisable that berthing should only take place in daylight and at slack water. Two local pilots and two tugs are available for berthing. No fresh water is obtainable at either pier.

4.156

Ao Thung Prong (12° 41′ N, 100° 51′ E) is entered 1 mile NE of Hin Khi Sua Light-structure (4.154). The bay is shallow and its head dries out for a distance of ½ mile.

Anchorage for small vessels may be obtained in Ao Thung Prong.

A submarine cable extends in a SW direction from the head of Ao Thung Prong, and thence in a general S direction between Hin Khi Sua and the coast SE.

4.157

Ao Thung Kai Tia is entered between **Laem Taphao** (12° 40′ N, 100° 51′ E) and **Laem Pu Chao,** a bluff headland 151 m high, 1 mile SE.

Marine barracks and other buildings are situated at the head of Ao Thung Kai Tia which is low and wooded.

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Ko Kai Tia, a small islet, lies in the SE part of the bay on the shore bank.

Chumphon Khet Udom Sak Light-structure is a white tapering horn-shaped tower with the lantern platform on its SW edge, 9 m in height, situated on the summit of the bluff headland 3½ cables SE of Laem Pu Chao.

4.158

Prohibited anchorage. Anchoring and trawling are prohibited on account of the existence of submarine cables, in an area within a radius of 1 mile from Chumphon Khet Udom Sak Light-structure, and also in the vicinity of the submarine cable mentioned in 4.156.

4.159

Tidal streams through Chong Khram set N when the tide is rising at Bangkok Bar (4.106), and S when it is falling there, at the following rates:

Position	*Rate*
W of Ko I Ra	2–3 knots
Abreast Hin Wua Lai Khwai Wing	2–4 knots
Between Ko I Ra and the mainland	1–2 knots
½ mile from the mainland E of Hin Wua Lai Khwai Wing	1–2 knots
½ mile E of Ko Khram Noi	1–2 knots

4.160

Mined area. A dangerous area due to mines exists SSW of Ko Khram. See 1.5 and Appendix I.

AO SATTAHIP

4.161

Ao Sattahip is entered between Laem Pu Chao (12° 39′ N, 100° 51′ E) and Laem Thonglang (4.166) 4 miles SSE. Unauthorised entry into Ao Sattahip is prohibited.

Between Laem Pu Chao and **Laem Thian,** 2 miles ENE the coast is mostly hilly and fringed by stony beaches. Land has been reclaimed in the vicinity of Laem Thian.

Prominent radio masts stand 2½ cables NE of Chumphon Khet Udom Sak Light-structure (4.157). The radio mast 5 cables NW of Laem Thian is a squat inconspicuous structure on top of a small building, but two radio masts 3 cables NE of the same point are prominent features.

The buildings of the naval station are situated ½ mile N of Laem Thian. An L-shaped jetty projects S and W from Laem Thian and is the jetty for the naval station; there are depths of 7·0 m alongside the S side of the jetty. A pier is situated 1½ cables E of the jetty.

4.162

The NE shore of Ao Sattahip is low and wooded and is fringed by a sandy beach.

Amphoe Sattahip, where there is a hospital, and several jetties, stands at the head of the bay near the W end of the sandy beach. A prominent building is situated 1 mile E of Amphoe Sattahip. **Khao Sattahip,** with an elevation of 271 m, on which stands a mast, marked by air obstruction lights, lies 1¾ miles NE of Amphoe Sattahip (12° 40′ N, 100° 54′ E).

4.163

Several islands and dangers lie in the W part of Ao Sattahip. **Ko Tao Mo,** 145 m high, is the largest of these islands, and lies ¾ mile SE of Laem Pu Chao.

A **light** is exhibited from a white metal framework tower, 4 m in height, situated on a rock close off the NW extremity of Ko Tao Mo.

There is a flagstaff and a small pier on the NE extremity of Ko Tao Mo (12° 39′ N, 100° 53′ E), and another small pier is situated near the NW extremity of the island.

There is a narrow channel between the island and the mainland with a least depth of 5·8 m (19 ft) in the fairway.

A buoy (N cardinal) is moored 1½ cables N of the flagstaff on the NE extremity of Ko Tao Mo. A buoy (E cardinal) moored 3½ cables SE of the same flagstaff marks the E edge of the shore bank.

Anchorage for vessels with local knowledge can be obtained N of the NE extremity of Ko Tao Mo in depths of 6 to 8 m (20 to 26 ft). Anchorage NE of Ko Tao Mo is reported to be unsafe, especially during the SW Monsoon.

4.164

Ko Phra, 96 m high, lies 2½ cables NE of Ko Tao Mo, with depths of 4·6 to 10·1 m (15 to 33 ft) in the channel between them: a rock awash, lies on the edge of this channel, ½ cable SW of the W extremity of Ko Phra.

Two piers are situated 2 cables SW and 1 cable SE of the NE extremity of the island.

A buoy (starboard hand) marks the N extremity of a bank which extends 2¾ cables N from the NE extremity of Ko Phra.

A **submarine cable** is laid from the E end of Kho Phra NNW to the coast near Laem Thian.

Ko Phra Noi (12° 38′·6 N, 100° 54′·1 E), 39 m high, lies 2¾ cables E of Ko Phra: there is foul ground between them. A bank extends 3½ cables NNW from Ko Phra Noi.

A rock, with a depth of 1·8 m (6 ft) over it, lies in mid-channel 6½ cables N of Ko Phra Noi, and is marked on its N side by a buoy (N cardinal).

Tidal streams W of Ko Tao Mo attain a rate of 1 to 1½ knots, setting NW on the rising tide and SE on the falling tide. In the channel between Ko Tao Mo and Ko Phra, the flow attains a rate of 1 knot in the directions as above: ½ mile S of Amphoe Sattahip the flow reaches ¼ to ¾ knot, setting 260° on the rising tide and 080° on the falling tide.

4.165

Ko I Lao, 75 m high, the outermost of the islets in the approach to Ao Sattahip, lies 9 cables SSE of Mo Tao Mo. **Ko Yo,** 61 m high, lies NE of Ko I Lao on the same bank and is separated from it by a shallow narrow channel. **Ko Maeo,** 15 m high, lies 4 cables SE of Ko Yo.

Tidal streams between Ko Tao Mo and Ko Yo set SW at a rate of ½ to 1 knot on the rising tide; NW of Ko Mu it sets 255° at a rate of ¼ to ½ knot on the rising tide.

Ao Chuk Samet is situated in the SE part of Ao Sattahip close NE of Laem Thonglang.

Chart 3724

Chuk Samet Harbour

4.166

Chuk Samet Harbour (12° 37′ N, 100° 55′ E) is situated at the SE end of Ao Sattahip between **Laem Thonglang** (12° 37′·4 N, 100° 55′·1 E) and **Ko Mu,** 67 m high, 6 cables W. It is protected from SW by a breakwater extending 5½ cables SE from Ko Mu. A light is exhibited from the breakwater head.

Vessels up to 250 m long drawing 9·1 m can be accommodated in the harbour.

The approach channel leads NNE to pass close off the breakwater head and is marked by port and starboard hand light-buoys. Entrance Light-buoy (safe water) is moored 1¾ miles SSW of the breakwater head.

Leading lights are exhibited from Laem Thonglang; No 2, the front, from a green framework tower, 14 m in

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height, with a white top and below the light an orange rectangular daymark and No 1, the rear, from a similar structure, 26 m in height. In line bearing 017½° they lead along the approach channel.

Pilotage is compulsory: the boarding position is in the vicinity of Entrance Light-buoy.

Chart 3727

Anchorages are situated 2½ miles S and 2½ miles SW of Ko I Lao (4.165). The quarantine anchorage is 1¼ miles W of Ko Chuang (4.170). The limits of the anchorages can be seen on the chart.

Chart 3724

Harbour. Pol Pier, a deep water tanker berth, is situated on the E side of the harbour close within the entrance. The pier extends 2½ cables WSW from the S side of Laem Thonglang. A tanker 204 m long drawing 9·1 m can be accommodated. Berthing is normally restricted to daylight hours. A light is exhibited from the S dolphin at the pierhead.

There are five berths at quays on the N and W sides of Laem Thonglang for vessels with a maximum draught of 8 m.

The turning area off the quays is marked by light-buoys.

Facilities. Two tugs of 3600 hp are available.

There are 2 mobile cranes of 45 tons and 23 tons.

Fresh water is available at Pol Pier.

Bunker fuel is only available by road tanker.

Repairs cannot be undertaken.

There is a port radio station.

An airfield is situated 2 miles NE of Chuk Samet Harbour.

4.167

Khao Kratha Khwam, 138 m high and cone-shaped rises steeply from the coast 8 cables E of the light at the head of the breakwater extending SE from Ko Mu.

Ko Nang Ram, 28 m high, lies 5 cables E of the same breakwater head. **Ko Chorakhe,** 56 m high, lies ¾ mile S of Ko Nang Ram and 4 miles offshore.

A **light** is exhibited from a white metal framework tower on the summit of Ko Chorakhe.

Tidal streams in the channel between Ko Chorakhe and the mainland set NW on the rising tide and attain a rate of 1 to 1½ knots.

Chart 3727

Chuk Samet Harbour to Laem Samae San and off-lying islands

4.168

Between the entrance to Chuk Samet Harbour and Laem Samae San (12° 36′ N, 100° 58′ E), 3¼ miles SE, there are two bays, the shores of which are wooded and low but their entrance points rise steeply to hills, 50 to 100 m high.

Laem Samae San is 57 m high, and is the E entrance point of the bight which forms the head of the Gulf of Thailand; a pagoda stands on the S side of the promontory.

Khao Nong Phak Bung, 125 m high, lies 1 mile N of the point.

Hin Chula, ½ m (2 ft) high, lies at the extremity of some foul ground which extends 1¾ cables E from Laem Samae San.

Hin Chula Light-structure is a white concrete tower with black bands 6 m in height, situated on the rock.

Ko Raet, 105 m high, is separated from Laem Samae San by **Chong Samae San,** which is ¼ mile wide with a depth of 6·1 m (20 ft) in the fairway.

Tidal streams through Chong Samae San run with considerable velocity at springs, and no vessel without local knowledge should pass through it. The stream sets W on the rising tide and attains a rate of 1 to 1½ knots.

A beacon (white metal framework tower), 5 m in height, stands on the N side of Ko Raet (12° 35′ N, 100° 58′ E).

4.169

Ko Samae San, 166 m high, lies 3 cables SW of Ko Raet and is separated from it by **Chong Pla Wai,** where there is a least charted depth of 6·5 m in the fairway.

Tidal streams in Chong Pla Wai set NW on the rising tide and attain a rate of 1 to 1½ knots.

A patch of sand, with a depth of 1·8 m (6 ft) over it, lies 1½ cables N of the N extremity of Ko Samae San.

A mooring buoy lies off the N side of Ko Samae San 3½ cables E of its N extremity and 1¼ cables offshore.

Ko Kham, 63 m high, lies ½ mile W of Ko Samae San. **Hin Lak Kunchae,** 3 m high, lies 8 cables SSE of Ko Kham and ½ mile from the W side of Ko Samae San.

Ko Chang Klua, 27 m high, lies 1 mile E of **Laem Farang,** the S extremity of Ko Samae San.

A **measured mile** is situated 3 miles SW of Ko Samae San. The front marks stand on Hin Lak Kunchae and Hin Lak Bet and the rear marks on Samae San, bearing 047° from the front marks. The running course is 156°.

4.170

Ko Chuang (12° 31′ N, 100° 58′ E), 119 m high, lies 1¼ miles S of Ko Samae San.

Ko Chuang Lighthouse is a white brick tower, 15 m in height, situated near the summit of the island.

Ko Rong Nang and **Ko Rong Khon** lie close together, ¼ mile NE of Ko Chuang.

An **explosives dumping ground** is situated in an area 2 cables square close NW of Ko Rong Nang.

Hin Lak Bet, 7 m high, lies 1 mile NW of Ko Chuang; **Ko Chan,** 75 m high, lies 4½ cables E of the same island.

A **spoil ground** is situated in an area ½ mile across, 1 mile NW of Hin Lak Bet.

4.171

Hin Chalam (12° 28′ N, 100° 58′ E), 8 m high, white and steep-to, lies 2½ miles S of Ko Chuang; it is covered by a subsidiary red light exhibited from Ko Chuang Lighthouse.

Charts 3965, 3966

Hin Yai (12° 26′ N, 100° 58′ E), an 11·0 m (36 ft) coral patch, lies 2¼ miles SSW of Hin Chalam.

Laem Samae San to Ko Samet

4.172

Between Laem Samae San (4.168) and Laem Ya, 27 miles E, **Ao Rayong** is a bay with a sandy beach and a low wooded coastline, except for **Khao Sap,** an isolated hill on the coast 2½ miles NW of Laem Ya.

A **beacon** (metal framework tower) marked by an air obstruction light stands on the summit of **Khao Khrok,** 272 m high, situated 8½ miles NE of Laem Samae San.

Chart 3966

Ko Saket, 22 m high, lies 1¼ miles offshore midway between Laem Samae San and Laem Ya (4.176). Ko Saket is covered by the red sector of the light near Rayong (see below), between the bearings of 077° and 087°.

A gas pipeline from Erewan Gasfield (4.25a) is landed 3 miles NW of Ko Saket.

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In 1987 it was reported that a deep sea port was to be constructed at **Map Tha Phut,** in the vicinity of Ko Saket.

4.173

Mae Nam Rayong discharges into the sea 6 miles ENE of Ko Saket (12° 39′ N, 101° 10′ E); the mouth of the river is continually shifting and its bar nearly dries.

Rayong Light-structure is a white metal framework tower, 16 m in height, situated within the mouth of Mae Nam Rayong.

A pier extending 6 cables offshore is situated 2½ miles ESE of Rayong Light-structure. There is a blue gas tank at the root of the pier.

Anchorage may be obtained in depths of 8 to 13 m (26 to 43 ft), S of Rayong Light-structure, but there is no shelter in either monsoon. When there is a heavy sea, vessels discharge their cargo at Ko Samet.

Changwat Rayong stands on the N bank of the river, 1 mile inland; its principal products are pepper and gamboge.

Supplies can be obtained at Changwat Rayong.

4.174

Hin Redang, with a depth of less than 2 m (6 ft) over it, is situated 2¾ miles WNW of Laem Ya: it is marked on its N side by a buoy (conical; black and white bands; rectangular topmark). Hin Redang is covered by the red sector of Ko Samet Light between the bearings of 099° and 102°.

Hin Bush, with a depth of less than 2 m (6 ft) over it, lies 1½ miles SSE of Hin Redang; a buoy (can; black and white bands; ball topmark) is moored close SE of Hin Bush, which is covered by the red sector of Ko Samet Light between the bearings of 086° and 090°.

4.175

Laem Ya (12° 35′ N, 101° 25′ E) is a cliffy promontory. Radio towers stand on the S extremity of Laem Ya and 1¼ miles NNE.

4.176

Ko Samet, the N extremity of which is **Laem Noina,** lies 2 miles E of Laem Ya. The island is hilly, attaining an elevation of 111 m at its N end; its coast is cliffy in places, especially on its W side, and the E side of its S end. It is almost completely surrounded by rocks, with depths of less than 2 m (6 ft) over them, lying close offshore.

Laem Yai, the E extremity of the island, lies 1½ miles SE of Laem Noina and has two small hills on it, the S one of which is 19 m (62 ft) high, separated from the hills farther in by low wooded land. **Hin Khan Na,** awash, lies 3 cables SW of Laem Yai. **Hin Khao,** 6 m high, lies 1 mile NE of the S extremity of Ko Samet and ½ mile offshore. **Ko Chan,** 20 m high, and nearly divided into two by a low isthmus, lies 3½ cables S of Ko Samet. **Hin San Chalam,** 0·8 m high, lies ½ mile S of Ko Chan; rocks, awash, extend 2 cables SE from Hin San Chalam, and there is an above-water rock 1½ cables E of it.

Ko Samet Light-structure is a white metal framework tower 15 m in height, situated on Laem Phra, the NW extremity of the island.

4.177

Chong Samet separates Ko Samet from the mainland. There is a depth of 5·8 m (19 ft) in the fairway of the channel, but the channel itself and its approaches are encumbered with rocks. The channel should not be used without local knowledge.

Hin Sunthon, with a depth of 3·2 m over it, lies in mid-channel 6½ cables SE of Laem Ya (4.175), and is covered by the green sector of Ko Samet Light between the bearings of 078° and 083°.

A shoal, with a depth of 5·0 m over it, lies in mid-channel 6 cables NE of Hin Sunthon.

In the NE approach to Chong Samet, a rock, with a depth of less than 2 m (6 ft) over it, lies 1¾ miles NE of Laem Ya and 9½ cables N of Ko Samet.

Anchorage may be obtained in a depth of 6 m (20 ft), ½ mile N of Ko Samet.

Ko Samet to Laem Thoraphim

4.178

Between Laem Ya and **Laem Thonglang,** 8½ miles ENE, there is a bay, the shores of which are low and wooded. Hills, which are steep on their E sides, extend 1½ miles N from Laem Ya. **Khao Taphao Khwam,** 544 m high, lies 5½ miles N of Laem Ya; it is the S peak of a range of mountains extending 10 miles N.

Ao Phe is entered between Laem Ya and **Laem Ban Klaeng,** a prominent bluff 26 m (85 ft) high projecting from the coast, 5¼ miles NE. **Ban Phe** is situated 2 miles NNE of Laem Ya. Foul ground extends 1 mile from the shore of Ao Phe, and there are numerous off-lying dangers.

Khlong Klaeng, with **Ban Klaeng** on its W side, is entered close E of Laem Ban Klaeng.

4.179

Ko Kudi, 48 m high, with the rocky islet, **Ko Kangkhao,** close S of it, lies 3 miles S of Laem Ban Klaeng, and is the S island of a chain of islands, islets and rocks which extend from the point; vessels should pass S of Ko Kangkhao.

Ko Pla Tin, 27 m high, lies 1 mile NNE of Ko Kudi, with **Ko Kruai,** 26 m high and **Ko Kham,** 33 m high, between them. All these islets are fringed by below-water rocks which extend as much as 1 cable offshore.

4.180

Ko Thalu (12° 33′ N, 101° 34′ E) is 64 m high, and lies 4¼ miles S of Laem Thonglang. **Hin Klang Rong,** which dries, lies 1 mile N of Ko Thalu.

Hin Alhambra (12° 26′ N, 101° 40′ E), situated 13 miles S of Laem Thoraphim, consists of two coral patches. The SW rock dries, and the sea breaks heavily on it in bad weather; the NE rock has a depth of less than 2 m (6 ft) over it.

4.181

Between Laem Thonglang and **Laem Thoraphim** (12° 39′ N, 101° 39′ E), 5 miles E, there is a bay, the coast of which is low and wooded; the entrance to **Khlong Rawon** is situated midway between these points. **Ko Khi Pla,** 8 m high, lies 1 mile SW of Laem Thoraphim, and ¼ mile offshore.

Laem Thoraphim to Ko Saba

4.182

Between Laem Thoraphim and the entrance to Ao Khung Kraben (4.184), 15 miles ESE, there is a bay in which there are several off-lying islets and dangers.

Ko Man Nok, 21 m high, and fringed by below-water rocks, is the outermost of a chain is islets which lie on the foul ground extending from the NW shore of the bay.

A **light** is exhibited from a white metal framework tower, 13 m in height, situated on Ko Man Nok.

Hin Loftus, a patch of coral awash, lies 8 cables SE of Ko Man Nok. **Hin Yuan** consists of above-water rocks, surrounded by below-water rocks, situated 4 cables N of Ko Man Nok.

Ko Man Khlang, 29 m high, lies 2 miles NNW of Ko Man Nok.

Ko Man Nai, 52 m high, lies ½ mile N of Ko Man

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Khlang, to which it is joined by a reef. The area between Ko Man Nai and the coast N and NW is foul and not navigable.

The coast is low and wooded from Laem Thoraphim to **Khao Taphao Khwam,** which rises to an elevation of 112 m near the coast 12½ miles E. Between Khao Taphao Khwam and Ao Khung Kraben, 4¼ miles SSE, the coast is hilly. In the NW part of the bay the coast is fringed by a bank of mud and sand which dries and extends 7 cables offshore. The coastal bank, with islets and foul ground, extends 8 miles S from the NW shore.

Ban Prasae stands on the E side of the mouth of **Mae Nam Prasae** which discharges 5 miles NE of Laem Thoraphim.

A **light** is exhibited from a white metal framework tower, 16 m in height, on the W side of the entrance to Mae Nam Prasae.

Ban Phangrat stands on the W side of the mouth of **Mae Nam Phangrat,** 5 miles E of Ban Prasae. **Ban Krachae** is situated 1 mile NW of Khao Taphao Khwam (12° 39′ N, 101° 52′ E).

4.183

Two rocks lie S of the mouth of Mae Nam Phangrat (12° 42′ N, 101° 42′ E); **Hin Volant,** the outer rock, dries 0·9 m (3 ft), and is situated 1½ miles S; **Hin Phangrat,** awash, lies midway between Hin Volant and the river mouth.

Hin Wisit, with a depth of 5·5 m (18 ft) over it, lies 4½ miles NW of Ao Khung Kraben (4.184), and 2½ miles offshore.

Hin Ai Lop, which dries, lies 5¼ miles WSW of Ao Khung Kraben. **Hin Ritthidet,** with a depth of 3·7 m (12 ft) over it, lies ¾ mile SSW of Hin Ai Lop, and is the outermost danger extending from the NE shore of this bay.

4.184

Ao Khung Kraben (12° 35′ N, 101° 53′ E) is entered N of Khao Khung Kraben. The entrance is 3 cables wide and is obstructed by two islets, on the S of which is a pagoda. The bay is shallow and its shores are wooded. **Khao Khung Kraben,** a promontory 125 m high, is joined to the mainland by a narrow isthmus on which stands **Ban Khung Kraben.**

4.185

Laem Thai Ran Dokmai (12° 31′ N, 101° 57′ E) lies 5¼ miles SE of Khao Khung Kraben, and is the S end of a hilly projection the summit of which, **Khao Amphawa,** lies 2 miles N of the point. The coast between Khao Khung Kraben and Laem Thai Ran Dokmai is low and wooded, but **Khao Mu Dut** rises to an elevation of 187 m 2 miles SE of Khao Khung Kraben. **Hin Lom,** with a depth of 3·7 m over it, lies 1 mile SSE of Khao Khung Kraben. **Hin Ai Lao,** some of which are awash, extend 1 mile offshore from a point 2 miles NNW of Laem Thai Ran Dokmai.

Ko Saba, 64 m high, is separated from Laem Thai Ran Dokmai by **Chong Saba** which is 1 cable wide. **Ko Luk Saba,** a reef awash, extends 2 cables S from Ko Saba.

Ko Saba to Laem Sing

4.186

Mae Nam Khem Nu is entered close E of Laem Thai Ran Dokmai and is obstructed by a bar with a depth of 1·8 m (6 ft) over it, extending from the N end of Ko Saba and **Hin Pluang,** a rock awash lying 6 cables ENE. Inside the bar, the channel is very narrow, and there is a sandspit on its E side which can generally be seen distinctly and which partly dries, extending 1 mile offshore. **Khao Chamkhlong,** 112 m high, lies on the promontory on the W side of the river ½ mile W of **Ban Khem Nu** which stands on the E entrance point of the river.

4.187

Ao Mu Yai is entered between Laem Thai Ran Dokmai and **Laem Mu Yai,** 51 m (168 ft) high, 5½ miles ESE. Between Khem Nu and Laem Mu Yai the coast is low and wooded.

There are numerous fishing stakes off this stretch of coast during the NE Monsoon.

Ao Mu Noi is entered between Laem Mu Yai and **Laem Mu Noi,** 95 m high, 4 cables SE. The inner part of this bay is encumbered with a drying bank; below-water rocks, some of which are awash, obstruct the entrance.

4.188

From Laem Mu Noi to **Laem Sing** (12° 28′ N, 102° 04′ E) 1¼ miles SE, the coast is hilly. **Laem Kating,** 99 m high, projects from the coast midway between the two last-mentioned points. Laem Sing forms the W entrance point of Mae Nam Chanthaburi. **Ko Nom Sao,** 171 m high, lies 2 miles W of Laem Sing.

Laem Sing Light-structure is a white metal framework tower, 6 m in height, standing on the point; a **beacon** (white), stands on the foreshore 2 cables NNE of the light-structure.

Mae Nam Chanthaburi

4.189

The entrance to Mae Nam Chanthaburi can be identified by **Khao Map Wa Krok,** 923 m high, situated 10 miles NE of Laem Sing, and also by Ko Nom Sao (4.188). **Khao Phloi Waen,** 149 m high, lies 8½ miles N of Laem Sing.

Ko Chula, 15 m high, lies outside the entrance, 4 cables SE of Laem Sing.

Hin Sukhrip, with a depth of 3·4 m (11 ft) over it, lies in the approach to Mae Nam Chanthaburi, 6 cables S of Laem Sing.

Anchorages. A convenient anchorage for small craft outside the river entrance, may be obtained with Ko Chula bearing 058° distant 1 mile in a depth of 7 m (23 ft). Large vessels can obtain anchorage in Ao Mu Yai, 1 mile NW of Ko Num Sao in a depth of 11 to 12 m (36 to 39 ft).

4.190

Mae Nam Chanthaburi is entered between Laem Sing and a point ¾ mile N, upon which stands **Ban Pak Nam.** A rocky bank extends 1 cable E from Laem Sing, leaving a channel 2 cables wide with a depth of 3·7 m (12 ft) in the fairway. A rock, with a depth of less than 2 m (6 ft) over it, lies 6½ cables N of Laem Sing and close offshore.

The harbour at the entrance to the river can accommodate a few vessels not exceeding 45 m in length or 2½ m draught. There is an anchorage for naval vessels 4½ cables N of Ban Pak Nam.

Vessels drawing 3·7 m can proceed up the river for a distance of 2¼ miles N of Ban Pak Nam, where **Ban Laem Pradu** is situated on the W side of the river. There is a custom house, a church, and a wooden pier 90 m long at Ban Laem Pradu.

Anchorage. Local vessels anchor off Ban Laem Pradu, but it is necessary to moor as the tidal streams are strong.

4.191

Tha Chalaep, the port of Chanthaburi is situated on the N bank of the river 3½ miles N of Ban Pak Nam. There is a concrete jetty with a T-head at Tha Chalaep,

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alongside which vessels of 500 tons and up to 3·0 m (10 ft) can berth at high water. There are landing steps, on either side within the head of the jetty (12° 32′ N, 102° 04′ E). Vessels unable to berth alongside, can anchor off the jetty.

A light-buoy (can; black and white bands; light flashing green every 3 seconds) is moored 3 cables ESE of the NE extremity of the jetty, and a buoy (spherical; black and white bands; globe topmark) is moored 1¼ cables E of the same jetty.

There is a shoal, with a depth of 3·0 m (10 ft) over it, 1 mile S of the jetty at Tha Chalaep.

Pilotage. No pilots are available.

Tidal streams in the river are strong and very variable, and run for 12 hours without turning when the moon has a high declination N or S. In the entrance the out-going stream tends to set a vessel towards Ko Chula.

4.192

Chanthaburi, an important town with a cathedral stands 9 miles NNE of the mouth of Mae Nam Chanthaburi; boats with local knowledge and drawing up to 1·2 m can ascend the river as far as this town.

Trade. Pepper, cotton, coffee and rubber are grown in the district; tobacco, rice, pepper, fruit, rubber and dried fish are the principal exports. Chanthaburi has a considerable trade in precious stones.

Supplies. Fresh provisions and other supplies are plentiful.

Laem Sing to Laem Ling

4.193

During the NE Monsoon there are numerous fishing stakes off the coast between Laem Sing and Laem Ling. **Ko Nang Ram,** 44 m high, lies 4 cables offshore, 4 miles SE of Laem Sing. **Ko Proet** (12° 25′ N, 102° 08′ E), 76 m high, lies 1 mile ESE of Ko Nan Ram, and is connected to the coast by a drying ridge. **Ko Kwang,** 49 m high, lies ½ mile SE of Ko Proet. **Hin Phin,** with a depth of 4·3 m (14 ft) over it, lies 9 cables SSE of Ko Kwang.

Kin Boiesen, with a depth of 1·8 m over it, lies 5½ miles S of Laem Sing.

Hin Phut, which dries 0·3 m, lies 7½ miles SSW of Laem Sing. A light-buoy (can; black and yellow; lights flashing white every 3 seconds) is moored close E of Hin Phut.

4.194

Mae Nam Wen is entered 10½ miles SE of Ko Proet (4.193). There are no navigational aids in the river and local knowledge is essential.

Ko Chik Nok (12° 18′ N, 102° 15′ E), 61 m high, and cultivated, is situated 1¼ miles W of the S entrance point of the river. **Ko Chik Klang** lies midway between Ko Chik Nok and **Khao Chik Nai,** the SE entrance point of the river. There is a village on the N side of Ko Chik Nok.

Ko Chik Nok Light-structure is a white concrete tripod, 7 m in height, situated on the NW extremity of Ko Chik Nok.

Anchorage may be obtained outside the river entrance 3 cables N of Ko Chik Nok in a depth of 4 m (13 ft).

The bar extends 2 miles SW from Ko Chik Nok, the depths in the fairway being from 1·8 to 2·1 m (6 to 7 ft). A shoal, which dries, extends 4½ cables N from the S entrance point, narrowing the navigable channel to a width of 2 cables; in this part of the river, there is a least depth of 3·4 m (11 ft) in mid-stream. The depths are greater 1 mile within the entrance and here the river is divided into two branches. The N branch leading to **Ban Yao (Khlung),** a town situated 10 miles up the river. **Khlong Wen,** the E branch, is shallow. Both branches are between mangrove swamps, but there are rice fields at Ban Yao.

There is a boat channel to Mae Nam Chanthaburi from near Ban Yao.

4.195

The coast between the mouth of Mae Nam Wen and Laem Ling (4.196), 5 miles SE, is low and fringed with mangroves.

Charts 3966, 3967

Chong Ko Chang

4.196

The NW entrance to **Chong Ko Chang** is between the N extremity of Ko Chang (4.198) and **Laem Ling** (12° 12′ N, 102° 17′ E), 3¼ miles NNE. **Ko Chang Noi,** 85 m high, lies close NW of the former point.

A radio tower (red and white bands; red obstruction light) stands 1¼ miles ESE of Laem Ling.

Hin Khi Chang, 1 m (4 ft) high, lies on the N side of the fairway 3 miles SE of Laem Ling.

Hin Khi Chang Light-structure is a white metal framework tower, 8 m in height, situated on Hin Khi Chang.

A rock awash, marked on its NE side by a light-buoy, lies ¾ mile ENE of Hin Khi Chang.

Between **Laem Lanthom,** on the N side of Chong Ko Chang 1¾ miles NE of Hin Khi Chang, and **Laem Ngop,** where there is a pier, 4 miles E, there is a shallow bay. **Ko Pui** lies in the NW part of this bay, ½ mile offshore.

Laem Ngop Light-structure is a white concrete framework tower, 10 m in height, situated on the point.

A radio tower (red and white bands; red obstruction light) stands close ENE of Laem Ngop.

Between Laem Ngop and **Laem Sok (Laem Nam)** (12° 03′ N, 102° 35′ E), 14 miles SE, there is a bay, at the head of which is Khlong Tha Taphao.

Laem Sok Light-structure is a white concrete tower, 12 m in height, situated on the point.

Hin Mun Chang, a group of rocks which dry 1·5 m (5 ft), lies 6 miles SE of Laem Ngop and 3 miles offshore.

4.197

On the SW side of Chong Ko Chang there are several villages on the coast, but at low water access to them is difficult. **Ban Nonsi,** where there is a custom house, lies 4½ miles SSW of Laem Ngop. **Ko Salak,** 60 m high with an islet close NW of it, lies on the SW side of the fairway 3¼ miles SW of Hin Mung Chang (12° 05′ N, 102° 28′ E).

Anchorage may be obtained in Chong Ko Chang ¾ mile SE of Hin Khi Chang (4.196) in a depth of 8 to 9 m (26 to 30 ft). Small vessels can obtain anchorage in a depth of 5 m (16 ft), 1½ miles SW of Laem Ngop.

Directions for Chong Ko Chang. When entering from NW, steer for Hin Khi Chang bearing 101°, passing 1 to 2 cables S of it. Anchor when Hin Khi Chang comes in line with or open SW of Laem Ling. Vessels proceeding to Ao Trat (4.206), if drawing more than 4·6 m should not proceed beyond Hin Khi Chang without local knowledge.

Ko Chang and islands south-east

4.198

The N extremity of **Ko Chang** lies 3¼ miles SSW of Laem Ling (12° 12′ N, 102° 17′ E). Ko Chang has several peaked hills intersected by rocky and precipitous ravines. **Khao Salak Phet,** its 743 m high summit, is a

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table-topped peak near the middle of the S end of the island.

Ao Son is entered between the N extremity of Ko Chang and a point 1¼ miles S. Several islets lie off the W side of Ko Chang. **Ko Mapring,** 42 m high, lies close off the S entrance point of Ao Son. **Hin Rap,** 1·4 m high, lies 5 miles S of Ko Mapring and 2½ miles offshore. A rock, with a depth of less than 2 m (6 ft) over it, lies ½ mile E of Hin Rap. **Hin Sam Sao,** 2·6 m high, lies the same distance SE of Hin Rap.

Ko Suwan, 30 m high, with **Ko Rom,** 2½ m high, close SE of it, lies 2 miles ESE of Hin Sam Sao (12° 03′ N, 102° 15′ E) and 6 cables offshore. **Ko Yuak,** 51 m high, lies 1½ miles SE of Hin Sam Sao. **Ko Pli,** 34 m high, and **Ko Man Nok,** 33 m high, lie 1¼ and 5½ cables respectively, SE of Ko Yuak. **Ko Man Noi,** connected to the W side of Ko Chang by foul ground, is 36 m high, and lies 1¼ miles S of Ko Suwan. **Hin Luk Bat,** 1·1 m high, lies 2 miles WSW of **Laem Bang Bao** (11° 57′ N, 102° 19′ E), the SW extremity of Ko Chang.

Chart 3966

4.199

The S side of Ko Chang is indented. **Ao Salak Phet,** which is shallow, is entered 4 miles E of Laem Bang Bao, the SW extremity of the island. **Ko Phrao Nok,** 92 m high, with **Ko Phrao Nai** close N of it, lies in the entrance to Ao Salak Phet.

Ko Ngam, 101 m high, with some above and below-water rocks SE of it, lies close SE of the SE extremity of Ko Chang; an islet, 50 m high, lies ½ mile NE of Ko Ngam.

Ko Lao Nai, 82 m high, with some islets and above-water rocks extending SE from it, lies 2 miles W of Ko Ngam in the approach to Ao Salak Phet.

4.200

Ko Khlum, 267 m high, lies 3 miles SE of Laem Bang Bao. **Hin Rap,** 1·9 m high, lies 1½ miles W of the S end of Ko Khlum, and **Hin Rua Taek,** 0·5 m high, lies 1½ miles NNW of the same point.

Charts 3966, 3967

4.201

Ko Wai, 128 m high, lies 2 miles ESE of Ko Khlum (11° 55′ N, 102° 22′ E).

Ko Bai Dang, 103 m high, lies 1¾ miles E of Ko Wai. **Hin Bai Dang,** 3·6 m high, lies 1 mile E of Ko Bai Dang.

Ko Maisi Yai, 263 m high, with a rock, 19 m high, close off its S end, lies 1½ miles ESE of Ko Ngam (4.199).

Several islets lie within 2 miles ENE and E of Ko Maisi Yai. **Ko Maisi Lek,** 112 m high, with **Ko Mo Nai,** 47 m high, ½ mile N of it, lie on the same bank 3 cables E of Ko Maisi Yai. **Ko Falami Tai,** 30 m high, lies ½ mile ENE and **Ko Mo Nok,** 51 m high, ¾ mile ENE, respectively of Ko Maisi Lek. **Ko Falami Nua,** 23 m high, lies 1½ miles NE of Ko Maisi Yai.

Ko Chan, 87 m high, lies 6 cables S of Ko Maisi Yai.

4.202

Ko Rang Yai (11° 48′ N, 102° 23′ E), 193 m high, lies 9½ miles SSE of Laem Bang Bao (4.198), the SW extremity of Ko Chang. Several above-water rocks lie close W of the N end of the island; outside these rocks, 8 cables W of the summit, there is an obstruction.

Ko Mapring, 71 m high, lies ¾ mile N of Ko Rang Yai. **Ko Rang Lek,** 127 m high, lies close off the S extremity of Ko Rang Yai.

Ko Mak, which has a rocky headland 111 m high, at its W extremity, lies 3¼ miles ENE of Ko Rang Yai. A coral flat with depths of less than 5 m (16 ft) over it, on which lies **Ko Kradat,** 36 m high, and numerous below-water rocks, extends 4½ miles NE from Ko Mak; **Thi Tun Richelieu** lies at its NE extremity. **Ko Rayang Nok,** 75 m high, lies ½ mile S of the W extremity of Ko Mak and **Ko Kham,** 54 m high, lies 4 cables W of the N extremity of the same island. A mooring buoy lies in the SE bay of Ko Mak 1 mile N of the S extremity of the island.

A depth of 5·5 m (18 ft) lies 2 miles SE of the SE extremity of Ko Kradat.

4.203

There are three dangers in the channel between Ko Rang Yai and Ko Mak to the S and Ko Wai and Ko Bai Dang to the N. **Hin Phrai Nam,** awash, lies 3¼ miles WNW from the N extremity of Ko Mak. **Thi Tun Wesatri,** a rock with a depth of 9 m over it, lies 1¾ miles N of the N extremity of Ko Mak, with **Hin Chen Thale** a rocky patch with a depth of 8·5 m over it in between.

4.204

Mined area. A dangerous area due to mines exists in the channel between Ko Mak and Ko Wai. See 1.5 and Appendix I.

4.205

Ko Kut lies with **Laem Ta Tuai** (11° 46′ N, 102° 33′ E), its N extremity, 17 miles S of Laem Sok (4.196) and 16 miles offshore. It is a high, level island attaining an elevation of 292 m in its S part.

Ko Mai Si Ko Kut, 38 m high, lies off the entrance of a bay on the NW side of Ko Kut, 3 miles SSW of Laem Ta Tuai.

Good **anchorage** may be obtained by small craft with local knowledge in the above bay. **Ko Raet** lies close offshore 1½ miles N of **Laem Hin Dam,** the W extremity of Ko Kut and also the N entrance point of **Ao Khlong Chao. Hin Bang Bao** lies close off the SW extremity of Ko Kut.

Ao Yai is entered on the SE side of Ko Kut, 3 miles N of Laem Thian, the SE extremity of the island.

Ko Kut Light-structure is a white metal framework tower, 30 m in height, situated 4 cables NW of Laem Thian.

Ao Salat is entered on the NE side of Ko Kut between **Laem Khlong Khluai,** the E point and **Laem Yai Tui.**

Ao Muang Trat

4.206

Ao Muang Trat (Ao Trat) is entered between Laem Sok (12° 03′ N, 102° 35′ E) (4.196) and **Khao Hua Maeo (Maew),** a rocky bluff 71 m high, 14 miles SE. Within the bay, the coast is mainly low and bordered by sandy beaches. **Mae Nam Trat** flows into the head of the bay, which is shallow with drying mud-banks. **Laem Khuan** is situated on the E side of the bay 6½ miles NNE of Laem Sok. An above-water rock lies 4 miles SE of Laem Khuan and ¾ miles offshore.

Laem Ko Pu Light-structure is a white concrete tower situated on the W side of the bay, 3¼ miles WNW of Laem Khuan.

Good anchorage can be obtained in Ao Muang Trat 4 miles E of Laem Sok in a depth of 7 m (23 ft).

The town of **Trat** stands on the SW side of Mae Nam Trat 4 miles NW of its mouth. The principal exports are pepper and coconuts.

Supplies. Fresh provisions can be obtained at Trat.

Communications. There is regular communication by sea with Bangkok. Good roads run to Laem Ngop and to Chanthaburi.

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Chart 3967

Ao Muang Trat to Ko Yo

4.207

Between Khao Hua Maeo (4.206) and Ko Yo 21 miles SSE, the coast is mainly low and bordered by sandy beaches. Parallel with the coast, and from 1 to 3 miles inland there is a mountain range rising gradually to an elevation of more than 600 m, the S end of which lies 4 miles N of Ko Yo; one of its most elevated peaks is **Khao Ban That,** 629 m high, situated 10 miles NNE of Khao Hua Maeo. There are higher mountains farther inland.

A radio tower, red and white bands, stands ½ mile inland 5¾ miles SE of Khao Hua Maeo.

Numerous fishing stakes are to be found on this part of the coast during the NE Monsoon.

4.208

Ban Khlong Yai, situated 10 miles N of Ko Yo, consists of houses and go-downs built over the foreshore; the harbour is formed by a channel which runs through the built-up area and extends 1 mile to seaward. There is a jetty 840 m long.

Khlong Yai Light-structure is a white metal framework tower, 30 m in height, situated 11 miles NNW of Ko Yo.

Anchorage may be obtained by small craft in a depth of 4 m (13 ft) W of Ban Khlong Yai and 2 miles offshore.

4.209

Ko Yo (Kaoh Yor) (11° 36′ N, 102° 56′ E) is 117 m high and prominent; it appears as an island from a distance.

The approximate boundary between Thailand and Cambodia has its seaward end 3½ miles N of Ko Yo.

4.210

Prek Kaoh Pao (Rivière de Kaspor), the main branch of which leads NNW and parallel with the coast about 3 miles inland, enters the sea 1¾ miles SSE of Ko Yo. There is a depth of 1·8 m (6 ft) over the bar. There is a custom house at the village of **Phum Thral Krabei (Packlang)** on the W entrance point of the river (11° 34′ N, 102° 57′ E).

Kaoh Kong, a town of considerable size, with an airstrip 1 mile SE of it, is situated on the E bank of the river, 4 miles within the entrance.

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CHAPTER 5

EAST SIDE OF GULF OF THAILAND, PREK BOENG KRASAOP TO MUI BAI BUNG: COAST OF VIETNAM, MUI BAI BUNG TO MUI VUNG TAU

WEST COAST OF CAMBODIA AND VIETNAM

Charts 3985, 3986, 2660a

5.1

The W coast of Cambodia from latitude 11° 30′ N, and of Vietnam to Mui Bai Bung (8° 37′ N, 104° 44′ E) is much indented, and there are many off-lying islands and dangers. The sandy beaches on the coast are generally backed by wooded sand-hills. Inland, N of latitude 10° 45′ N, there are great mountain ranges.

In 1978, hostile activities against vessels were reported in the vicinity of Kaoh Wai (9° 55′ N, 102° 54′ E) and other islands off the W coasts of Cambodia and Vietnam. Caution is advised.

ISLANDS AND DANGERS LYING OFFSHORE BETWEEN 11° 30′ N AND 9° 15′ N

Chart 3967

5.2

Banc de Kaoh Kong (11° 20′ N, 102° 48′ E), with a depth of 12·8 m (42 ft) over it, lies 13 miles SW of Îlot Cône (5.8). **Banc de Yeay Sen,** with a least depth of 11·9 m (39 ft), rock, over it, lies 6½ miles SE of Banc de Kaoh Kong.

Batrerk Ubon Boratit, composed of coral and sand, with a least depth of 1·2 m (4 ft) over it, lies 8½ miles SSW of Banc de Yeay Sen; shallow water, with a depth of 6·1 m (20 ft), extends more than ½ mile SW of Batrerk Ubon Boratit.

Kaoh Kusrovie (11° 07′ N, 102° 47′ E), 11 m (36 ft) high, lies 1 mile SSW of Batrerk Ubon Boratit; the sides of the rock are shelving and isolated rocks extend ½ cable from it. There is deep water between Kaoh Kusrovie and the shoal which extends SW of Batrerk Ubon Boratit.

Récif Condor (10° 44′ N, 102° 52′ E), on which a vessel of that name was lost in 1860, dries 0·3 m (1 ft) and lies 17½ miles WSW of Chrouy Samit (5.13). A bank with depths of 20 m (11 fm) over it, lies 2 miles SW of Récif Condor.

Charts 3967, 3879

5.3

Kas Prins (Koh Prins) (10° 22′ N, 102° 58′ E), 61 m (200 ft) high, with a rock awash close W of it, is the W islet of a group lying 23 miles WSW of the light-structure on Kaoh Rong Samloem (5.16). An islet, 46 m (150 ft) high, lies 6 cables WSW of Kas Prins and another islet 6 m (20 ft) high, with a below-water rock close off its N side, lies 6 cables farther WSW.

Îlot Veer, 37 m (120 ft) high and steep-to, lies 9½ miles SSW of Kas Prins.

Kaoh Tang, 134 m (440 ft) high at its N end, is wooded and inhabited; it lies 10 miles WSW of Kas Prins. There is a sandy bay on its E side with **Îlot Abri** lying 6 cables N of its S entrance point. Good **anchorage** during the SW Monsoon may be obtained in this bay. A small islet lies 1 mile SE of Kaoh Tang.

Îlots du Sud Est, two in number, 4¾ cables apart, with depths of 20 to 26 m (11 to 14 fm) between, lie 4½ miles ESE of Kaoh Tang. The NW islet is 43 m (141 ft) high, and the other 32 m (106 ft) high. A shoal nearly 1 mile in length, with a least depth of 6·7 m (22 ft) at its N end, lies ½ mile ESE of the SE islet.

Chart 3879

5.4

Kaoh Wai (9° 55′ N, 102° 54′ E) lies 51 miles SW of Kaoh Ta Kiev (5.30). It consists of two wooded islands. The W island is 91 m (299 ft) high at its SE end and rocks extend a short distance from its N and NE extremities. There is a sandy bay on its NE side.

A **light** is exhibited from the E point of the island.

The E island, 61 m (200 ft) high at its N end, is separated from the W island by a channel 7 cables wide, with depths of over 18 m (60 ft) in the fairway. There are fresh water wells on the E island. A rock, 1 m (3 ft) high, lies ¾ mile E of the E island. **Roche Saracen,** awash, lies ¾ mile NNW of the E island.

Good **anchorage** can be obtained off the NW side of the E island of Kaoh Wai, but the best anchorage is off the sandy bay on the NE side of the W island, ¼ mile offshore in a depth of 15 m (49 ft).

In 1961, a shoal, with a depth of 8·5 m (28 ft) over it, was reported to lie 8 miles E of Kaoh Wai.

Depond Reef (9° 58′ N, 103° 08′ E), the charted position of which is approximate and which dries 0·6 m (2 ft) and has a below-water rock close N of it, lies 12 miles ENE of Kaoh Wai. In fine weather this reef is hard to distinguish.

5.5

Dewagougse Shoal, with a depth of 5·5 m (18 ft) over it, which was reported by a vessel of that name in 1888, lies 31 miles SE of Kaoh Wai. In 1961, a shoal with a depth of 7·3 m (24 ft) over it, was reported to lie 2¼ miles NW of the charted position of Dewagougse Shoal.

5.6

Hon Tho Chau (9° 18′ N, 103° 28′ E) lies 70 miles S of Kaoh Ta Kiev (5.30). It is of a nearly uniform elevation of 167 m (548 ft) and has the appearance of a table-land from all directions. On the W side of the island, which is inhabited, there is a bay which affords shelter and good **anchorage** during the NE Monsoon, in a depth of 29 m (16 fm) mud and coral. A rock, 1 m (2 ft) high, lies ½ mile SW of **Pointe Ouest,** the N entrance point of the bay.

Île du Pic lies 2 cables off the S extremity of Hon Tho Chau, with foul ground between.

Rajannatianuhar Reef, consisting of two heads of rock with a depth of 1·2 m (4 ft) over them, surrounded by a fringe of coral which is steep-to, lies ¾ mile S of Île du Pic.

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Hon Da Bac, 23 m (75 ft) high, lies 1½ miles SSW of Île du Pic.

Two islets lie ENE of Hon Tho Chau, one 60 m (197 ft) high, at a distance of ¾ mile and the other 45 m (148 ft) high 3 cables farther NE. An obstruction was reported in 1927 by SS *Daviken* to lie 2½ cables SW of the former of these two islets. Rocks, with depths of less than 2 m (6 ft) over them, extend a short distance from the NE side of the same islet.

The passage between Hon Tho Chau and the islet ENE of it, and between the latter and the 45 m (148 ft) islet is obstructed by coral.

Hon Da Ban, 34 m (112 ft) high, and **Rocher Table,** 12 m (39 ft) high, ¼ mile SE, lie 8½ miles NE of Hon Tho Chau.

PREK BOENG KRASAOP TO CHROUY SAMIT

Chart 3967

5.7

Prek Boeng Krasaop (Rivière Krassop) discharges into the Gulf of Thailand 3 miles SE of Prek Kaoh Pao (4.210); it has a depth of 1·5 m (5 ft) over its bar. The river interconnects through a series of shallow creeks with Prek Kaoh Pao and Chhak Kaoh Kong (5.11).

Kaoh Kapi, where there is a remarkable pagoda, stands on the coast 4 miles SE of the entrance to Prek Boeng Krasaop.

5.8

Îlot Cône (11° 26′ N, 103° 00′ E), known locally as **Kaoh Mul,** is 37 m (121 ft) high, and is joined to the mainland by a stony causeway; it lies 1½ miles S of Kaoh Kapi. There is a custom house and a pier at the N end of Îlot Cône and a house, where there is another pier, on its SE side. Landing can be effected at both these piers at all states of the tide.

Îlot Cône Light-structure is a red metal framework tower, 9 m in height, situated on the NW side of the island.

Chrouy Lam Dam is situated 1 mile SE of Îlot Cône. A house stands 1½ cables W of the E extremity of the point and a pier extends a short distance S of the house.

5.9

Kaoh Kong, lies close S of Chrouy Lam Dam and extends 10 miles in a S direction. It is a table-topped island which attains an elevation of 419 m (1375 ft) near the centre; there are some sandy beaches along its W shore, which is fairly steep-to, but there are no sheltered anchorages. The island is visited occasionally by fishermen. The S point of the island (11° 15′ N, 103° 01′ E) lies 2 miles NW of Chrouy Yeay Sen (5.12) on the mainland.

Numerous fishing stakes may be encountered on the coastal bank NW of Kaoh Kong.

5.10

Passe de Lam Dam is entered from W between Îlot Cône and the NW extremity of Kaoh Kong. There is a depth of 2·4 m (8 ft) in the fairway of the channel at the entrance; the depths are greater between Chrouy Lam Dam and Kaoh Kong and again become less as Chhak Kaoh Kong (5.11) is entered.

Tidal streams in Passe de Lam Dam are strong, and appear to reverse their direction through the pass every 12 hours about 3 hours after high and low waters; at the end of the dry season, December to February, the greatest rate on the falling tide does not exceed 2 knots.

Anchorage may be obtained in Passe de Lam Dam off the house on Chrouy Lam Dam (5.8) in a depth of 10 m (33 ft). During the SW Monsoon the best shelter will be found with the pier on the point bearing 338°, distant 1 cable. In the NE Monsoon, vessels can anchor NW of Îlot Cône Light-structure, but there are numerous fishing stakes here.

Directions for Passe de Lam Dam. When entering Passe de Lam Dam, steer with the head of the pier on the point in line with a saddle formed by the mountains inland bearing 098°. When the house on Îlot Cône bears 000°, alter course to 108° and keep in mid-channel to the chosen anchorage.

5.11

Chhak Kaoh Kong (Baie de Koh Kong) is shallow and numerous rivers flow into it from the mainland, which is low in the S part of the bay but rises gradually farther N until it joins the high table-land abreast Ko Kut (4.205). It is entered from N through Passe de Lam Dam and from S through a channel, the fairway of which lies close along the SE side of Kaoh Kong.

5.12

Between **Chrouy Yeay Sen (Pointe Yai Sen)** (11° 13′ N, 103° 02′ E) and Chrouy Samit, 21½ miles S, the land is hilly near the coast, forming rocky bluffs to seaward with sandy bays between them, which afford good anchorage with offshore winds.

The village of **Béchir** lies at the entrance to a small river 6 miles SSE of Chrouy Yeay Sen. **Chrouy Kaoh Putsa,** one of the bluffs mentioned above is 89 m (292 ft) high, and rises from a point 9 miles S of Chrouy Yeay Sen. **Le Coin de Mire,** with an elevation of 349 m (1145 ft), is the highest and most remarkable hill on this part of the coast, and is situated 4 miles SE of Chrouy Kaoh Putsa.

Kaoh Putsa consists of three islets lying within 1¾ miles of the coast and 1 mile SW of Chrouy Kaoh Putsa; the W islet is 89 m (293 ft) high.

Thma Branlebas (Roche du Branlebas) (11° 02′ N, 103° 04′ E), which dries 0·3 m (1 ft), lies 2¾ miles SSW of Chrouy Kaoh Putsa.

Île de la Table, 59 m (194 ft) high, lies 2½ miles SW of Thma Branlebas and 3½ miles offshore.

Kaoh Samil, 68 m (223 ft, charted as 490 ft) high, lies 2½ miles S of Île de la Table; another islet lies 1 mile NE of Kaoh Samil.

5.13

Îles Samit are a group of islands lying within 3 miles of the coast extending N from Chrouy Samit, see below. **Kaoh Smach (Koh Samit),** the S island of the group, is 119 m (392 ft) high, and lies 1¾ miles NW of the point. Between this island and the mainland there is a depth of 2·7 m (9 ft) in the fairway, and less on either side. Several high islets lie within 1½ miles NW of Kaoh Smach. Two islets, connected by a shallow ridge, lie 1¼ miles N of Kaoh Smach, with depths of 2·4 m (8 ft) in the channel between them.

Anchorage. An islet lies close NW of **Chrouy Samit** (10° 53′ N, 103° 07′ E), 149 m (490 ft) high, and a 3·7 m (12 ft) patch lies N of the islet. On the N side of the point, there is a small bay where anchorage may be obtained by vessels with local knowledge. There are several houses and a wharf on the shore of the bay.

APPROACHES TO CHHAK KAMPONG SAOM

Islands in the approach to Chhak Kampong Saom

5.14

Chhak Kampong Saom is entered between Chrouy

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Samit (5.13) and Krong Kampong Saom (Sihanoukville) (10° 38′ N, 103° 30′ E), 26½ miles SE; it extends 33 miles N from Krong Kampong Saom. Several islands and dangers lie across the mouth of the bay.

Kaoh Damlong (Îlot Plate) lies 2½ miles SE of Chrouy Samit; a rock, with a depth of less than 2 m (6 ft) over it, lies ½ mile E of Kaoh Damlong. There is a channel, 3 cables wide, between this rock and Îlot Nord, situated ½ mile SE. **Kaoh Mano (Île du Milieu),** 140 m (459 ft) high, lies close S of Îlot Nord.

Kaoh Ta Team (Île du Chenal) (10° 48′ N, 103° 11′ E), 106 m (348 ft) high, the N side of which is fringed with coral, lies ¾ mile SSE of Kaoh Mano, with a channel ½ mile wide between them.

5.15

Kaoh Rong, 316 m (1037 ft, charted as 1080 ft) high and wooded, lies 2 miles S of Kaoh Ta Team. On its SW side are two sandy bays; the SW and NW sides of the island are steep-to. On the N side of the island there is a bay, with an above-water rock ¾ mile W of the E entrance point and close offshore. **Banc de Kaoh Rong** with a least depth of 2·1 m (7 ft) over it, lies off the NE side of the island; **Kaoh Bang Pahin (Les Frères),** two islets, lie ¾ mile SSE of the NE extremity of the island.

Anchorages. Anchorage, which is sheltered during the SW Monsoon, may be obtained off the NE side of Kaoh Rong in depths from 7 to 15 m (23 to 49 ft). Anchorage can also be obtained in the S of the two sandy bays on the SW side of the island; the bay on the N side of Kaoh Rong is well protected. The channel between Kaoh Ta Team and Kaoh Rong can be used when approaching Chhak Kampong Saom from W.

Kaoh Toch (Îlot Sud) lies 2 miles NE of the S extremity of Kaoh Rong and ½ mile offshore.

Charts 3967, 3879

5.16

Kaoh Rong Samloem (Koh Rong Sam Lem), the SE island of the chain lying across the mouth of Chhak Kampong Saom, is 210 m (690 ft) high at its N end and is thickly wooded; it lies 2 miles SSE of Kaoh Rong. The SW and SE sides of the island are steep-to; **Kaoh Kon (Îlot Cône)** (10° 38′ N, 103° 17′ E), 156 m (512 ft) high, lies in the entrance of a small bay on its N side, 3½ cables offshore. A reef extends a short distance from the W entrance point of the bay.

Chhak Saracen is entered on the E side of Kaoh Rong Samloem; it is 1 mile wide between the entrance points and is divided at its head by a promontory into two parts. Some above-water rocks and boulders extend 2 cables offshore NW of this promontory. On the S side of the bay there is a sandy beach, near the SE end of which is a cascade.

Good **anchorage,** during the SW Monsoon, may be obtained 3 cables off the cascade in a depth of 7 m (23 ft). In the NE Monsoon, the N portion of the bay affords better shelter.

Kaoh Rong Samloem Light-structure is a white tower with a red band, 18 m in height, situated on the S end of the island.

The channel between Kaoh Rong Samloem and Kaoh Rong can be used, but it is rocky and unsuitable for anchoring.

Charts 3967, 2103

5.17

Kaoh Kaong Kang (Île des Paletuviers) lies midway between Kaoh Rong Samloem and the mainland E. A reef extends 4 cables WSW from the island.

Kaoh Kaong Kang Light-structure is a metal framework tower, 9 m in height, situated on the E end of the island.

The channel between Kaoh Kang and Kaoh Rong Samloem can safely be used when entering Chhak Kampong Saom from S.

CHHAK KAMPONG SAOM

Chart 3967

North and west sides of Chhak Kampong Saom

5.18

The N shore of **Chhak Kampong Saom** is low and bordered with mangroves.

Chamlang Kou (Cheko), 1¾ miles NE of **Îlot de la Comete** (10° 52′ N, 103° 21′ E), is a fishing village built on piles. Numerous fishing stakes are located 5 miles ESE of this village.

Pointe Kedith lies 2¾ miles ENE of Chamlang Kou. **Chrouy Ta Ak (Pointe des Bonzes)** lies 12 miles NNE of Pointe Kedith and **Prek Piphot** enters the head of Chhak Kampong Saom 5 miles farther NNE.

Pointe du Chef, off which lie **Îlots du Brandon,** above-water rocks, lies 7½ miles E of Chrouy Ta Ak. **Pointe des Singes,** 1½ miles ESE of Pointe du Chef (11° 05′ N, 103° 35′ E) is the N entrance point of **Prek Kampong Saom (Rivière de Sre Umbell),** which flows into the NE corner of the bay. **Phum Sre Ambel (Sre Umbell)** stands on the S bank, 8 miles from the mouth of the river.

Caution. Vessels without local knowledge should not proceed to the head of Chhak Kampong Saom.

East and south sides of Chhak Kampong Saom

5.19

Chrouy Suay (Pointe des Serpents) (11° 00′ N, 103° 39′ E) lies 7 miles SE of Pointe du Chef (5.18). A ridge of hills rises 5 miles inland between Chrouy Suay and **Prek Thma Rong (Rach Sabao),** which enters the bay 15 miles farther S. **Phnum Kaong (Le Chapeau Chinois),** 326 m (1070 ft, charted as 1116 ft) high, lies 7 miles ESE of Chrouy Suay.

Rocher Blanc, 3 m (10 ft) high, is situated 7¼ miles SSE of Chrouy Suay and ¾ mile offshore. **Rocher de la Comète,** awash, lies 4 miles WSW of Rocher Blanc at the W extremity of **Banc de la Comète** which extends 4½ miles from the shore.

5.19a

Pointe du Départ (10° 43′ N, 103° 32′ E) is situated 13 miles SW of Rocher Blanc. An oil refinery at which there is a flare stands close to the point. A tanker mooring lies 1 mile NW of the point and a pipeline is laid from it SE to the shore.

Chart 2103

5.20

Kaoh Poah (Île Pos) (10° 38′ N, 103° 29′ E), which attains an elevation of 42 m (138 ft, charted as 251 ft) at its S end and is densely wooded, lies close off the SE entrance point of Chhak Kampong Saom.

Kaoh Dek Kou (Rocher Dekcol), known previously as **Rocher Carré,** above-water, lies 1 mile W of the NW extremity of Kaoh Poah, with a least depth of 7·9 m (26 ft) in the channel between them.

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A **light** is exhibited from a metal framework tower, 9 m in height, situated on Kaoh Dek Kou.

5.21

Rocher Thmor, which dries 3·0 m (10 ft), lies 8½ cables N of the NE extremity of Kaoh Poah. A shoal, over which there is a depth of 4·3 m (14 ft) lies 2 cables NNW of Rocher Thmor. Light-buoy 'A' (black and white conical; light occulting white every 2 seconds) is moored on the NW side of this shoal.

Rocher Préap, 4½ m (14 ft) high, on which stand some prominent trees, lies 6 cables W of **Pointe Dominique,** which is situated 1¾ miles NE of **Pointe Loune** (10° 39′ N, 103° 30′ E), the N entrance point of the port of Kampong Saom.

A stone breakwater extends from Pointe Dominique to Rocher Préap and thence in a 205° direction for 1 mile.

A rock with a depth of 1·5 m (5 ft) over it, lies on a detached shoal, 3 cables NNW of Rocher Préap; a depth of 4·6 m (15 ft) lies ¾ mile NW of this rock.

KRONG KAMPONG SAOM

5.22

Krong Kampong Saom (Sihanoukville) (10° 38′ N, 103° 30′ E) is the only port of Cambodia which can berth ocean-going vessels alongside; it lies close NNE of the SE entrance point to Chhak Kampong Saom on the E side of a deep-water channel between Kaoh Poah (5.20) and the mainland.

Three **anchorages** off the port have been established. The S anchorage is centred round 'KS' light-buoy (5.24) at the seaward end of the deep-water approach channel to the port in depths of 10 to 12 m (33 to 39 ft); it is sheltered from N winds and is used for lighterage work when the N anchorage is too rough. The N anchorage, which has excellent holding ground, is situated to the W of 'A' Light-buoy (5.21) in depths of 9 to 11 m (30 to 36 ft). The tanker anchorage lies 2 miles NW of Kaoh Dek Kou in depths of 15 to 18 m (49 to 59 ft).

Prohibited anchorage. Anchorage is prohibited in the N approach to the main wharf E of a line joining 'B' and No 8 Light-buoys, and S between No 8 and No 2 Light-buoys.

Directions. Kampong Saom is easy of approach by day or by night. If arriving during the hours of darkness and proceeding to the N or tanker anchorage, vessels are advised to approach by entering between Kaoh Kaong Kang (5.15) and Kaoh Dek Kou (5.20), passing 4 cables W of the latter.

Restrictions. Cargo vessels berthing at Kampong Saom are limited to a maximum draught of 7·6 m plus the height of the tide, the controlling factor being the depth in the approach. Berthing is permitted in daylight only, and unberthing at any time subject to bad weather during the SW Monsoon. At the tanker mooring, vessels are limited to a maximum length of 220 m and maximum draught of 11·5 m.

Pilotage is compulsory for all vessels of more than 150 tons. Three pilots are available for berthing and will board at any of the three anchorages mentioned above; they should be contacted, giving ETA, 24 hours before arrival. The pilot launch is a white motorboat displaying international pilot signals.

5.23

Krong Kampong Saom consists of a main wharf which extends W and SW from Pointe Loune (5.21) and has a total length of 550 m. The principal part of this wharf is its SW arm which is 275 m in length and has depths of 8·8 m to 9·1 m (29 to 30 ft) alongside both its sides; it can accommodate four vessels of 10 000 tons or six of 4000 tons. Near the inner end of the main wharf a breakwater extends SSW providing shelter to a lighter basin on the E side of which there is a lighter quay.

A long wooden pier with a T-head is situated 4 cables SSE of the SW head of the main wharf.

5.24

'KS' Light-buoy is moored 7¼ cables S of Kaoh Poah; thence the channel from the S anchorage is marked on the E side of the fairway by Nos 3, 5 and 7 Light-buoys, and on the W side by Nos 2, 4, 6 and 8 Light-buoys.

The S part of the fairway is also marked by **leading beacons,** the rear on Pointe Loune and the front 5¼ cables SW; these beacons, in line bear 031½°. In 1969 the S leading beacon had disappeared.

5.25

Tidal streams in the vicinity of the main wharf flow parallel with it; the average rate does not exceed ½ knot, and the maximum is about 1½ knots. A flag is displayed at the SW end of the main wharf when the stream is running in a S direction, and at the N end of the wharf when running in a N direction; during slack water no flag is displayed.

5.26

A shoal, with a least depth of 4·6 m (15 ft) over it, lies 4 cables NW of Pointe Loune in the N approach to the main wharf. It is marked on its NE side by 'B' Light-buoy. A 5·5 m (18 ft) patch lies 1 cable S of this shoal.

5.27

From a position 1 cable E of the elbow of the main wharf, a stone breakwater extends 2¾ cables in a general NNE direction; its outer end is marked by a light-beacon (red and white).

5.28

Spare.

5.29

Facilities. Three tugs are available to assist in berthing. There are numerous cranes, up to a capacity of 15 tons, and other equipment for working cargo. There are six 200 ton lighters for working cargo with ships at anchor.

Deratting can be carried out: see 1.92.

There is a hospital.

Supplies. Fresh water is available at the main wharf. Fuel is only available at the main wharf, and is supplied by tanker-lorries in cases of emergency.

Communications. Krong Kampong Saom is connected with Phnom Penh, the capital 145 miles away, by a modern highway and by railway.

There is a helicopter landing site 1 mile S of the harbour. The nearest airport, for domestic flights only, is Raem Airport, situated 9 miles ESE of the harbour. Full international services are maintained at Phnom Penh Airport.

There are port and coast radio stations at Krong Kampong Saom.

CHHAK KAMPONG SAOM TO DAO PHU QUOC

Charts 3967, 3879

Chhak Réam

5.30

Kaoh Khteah (Îlot Ronde), fringed by a reef, lies in the approach to Chhak Réam, 5 miles SE of the SE entrance point of Chhak Kampong Saom, and 8½ cables offshore.

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Chhak Réam is entered between the NW entrance point (10° 32′ N, 103° 34′ E) and a point 3¼ miles SE. Five islands lie in the entrance. **Kaoh Praeus (Île Nord-ouest),** 71 m (233 ft, charted as 195 ft) high, lies 1 mile SW of the NW entrance point of the bay. **Kaoh Russei (Île Sud-ouest),** 104 m (342 ft) high, lies 1½ miles SE of Kaoh Praeus. **Kaoh Chraloh,** 39 m (129 ft) high, lies ½ mile NNE of Kaoh Russei. **Kaoh Ta Kiev (Île de la Baie),** the SE and largest, 114 m (375 ft) high at its NW end, lies 1 mile E of Kaoh Russei, and has a custom house on its NE extremity. **Kaoh Sra Maoch (Île du Chenal)** lies on the E side of the S entrance point to the bay, 6 cables E of Kaoh Ta Kiev. Reefs fringe all the islands.

There are several villages along the shore of Chhak Réam. A concrete jetty, 45 m long, with a depth of 3·7 m at its head, where vessels not exceeding 61 m in length can lie alongside, is situated at **Phsar Réam,** ½ cable N of the S entrance point of the bay.

There is a least depth of 5·5 m (18 ft) in the fairway between the NW end of Kaoh Ta Kiev and Kaoh Chraloh, but there is a spit, with a depth of 4·6 m (15 ft) at its outer end, extending 2¾ cables SE from Kaoh Chraloh.

Two shoals, with depths of 2·1 and 2·4 m (7 and 8 ft) over them, lie ½ mile NNE of the custom house on Kaoh Ta Kiev.

Rocher Blanc lies on a ledge of rocks extending 4½ cables SSW from the NW entrance point of the bay.

5.31

Leading lights are situated on the SE entrance point of Chhak Réam. The rear light (10° 30′ N, 103° 36′ E) is exhibited from a white metal framework tower, 12 m in height, situated 5¼ cables E of the custom house on Kaoh Ta Kiev; the front is exhibited from a similar structure 9 m in height, 290 m SSE of the rear light. These lights in line, bearing 348°, lead to the entrance of the passage between Kaoh Ta Kiev and Kaoh Sra Maoch.

A **light** is exhibited from a position 1 cable SW of the front leading light-structure mentioned above.

Rivière de Réam discharges into the NW part of the bay and the village **Smach Deng** is situated 2½ miles NW of its mouth. The river has a least depth of 0·6 m (2 ft) for a distance of 2 miles up stream, above which it nearly dries.

Anchorage. Chhak Réam, though exposed to the SW Monsoon, affords fairly secure anchorage, during that period, off the NE extremity of Kaoh Ta Kiev. The best anchorage is at the N end of the channel between Kaoh Sra Maoch and Kaoh Ta Kiev, with the N side of the jetty at Phsar Réam bearing 105°, in a depth of 11 m (36 ft). There is a mooring buoy ¼ mile NW of this jetty.

5.32

Tidal streams of about 1 to 2 knots have been observed at the anchorage between Kaoh Ta Kiev and the mainland, setting N on the rising tide and SSE on the falling tide, changing direction at about the time of local high and low water. The flow is felt at the jetty.

Directions. Vessels entering Chhak Réam, if drawing less than 4·6 m, can use any passage between the islands except between Kaoh Sra Maoch and the mainland. The best approach is the channel between Kaoh Sra Maoch and Kaoh Ta Kiev, and if proceeding farther into the bay by this channel, the two shoals ½ mile NNE of the custom house on Kaoh Ta Kiev (5.30) should be avoided by passing SW of them.

Chart 3879

5.33

Kaoh Thmei (Île Phu Du) lies 7½ miles E of Kaoh Ta Kiev, and has two peaks, the N one being 171 m (563 ft) high. It is separated from the mainland by **Kinh Hon Nan,** a shallow channel ½ mile wide. The mouth of **Prek Toek Sap (Rivière Dat Sap)** is situated NW of the N extremity of Kaoh Thmei. There is a conspicuous summit, 161 m (530 ft) high, situated on the mainland 4 miles E of **Mu-hu,** a village on the N side of the river entrance and 3 miles NE of the N extremity of Kaoh Thmei.

Kaoh Ses, which is 88 m (291 ft) high, lies ¾ mile SE of Kaoh Thmei, and is separated from it by **Kinh Ta Ly.** This channel is not recommended as the tidal streams are very strong and dangerous to small craft. Good **anchorage** during the NE Monsoon can be obtained, however, ¼ mile off the NW side of Kaoh Ses in a depth of 7 m (13 ft), avoiding a rocky patch with a depth of 1·5 m (5 ft) over it, which extends 4 cables S from Kaoh Thmei.

Hon Ruoc lies ½ mile W of the S extremity of Kaoh Ses, and a shoal, with a depth of 3·0 m (10 ft) over it, lies 1½ miles SE of the same point. A rock with a depth of 0·6 m (2 ft) over it, lies ½ mile SSE of **Mui Hang Quyen,** the E extremity of Kaoh Ses.

Prek Kampong Smach discharges into the head of Chhak Veal Renh (5.36), where the coastal bank with depths of less than 10 m (33 ft) extends 7 miles from the shore.

KAMPOT AND APPROACHES

5.34

Kampot (5.53) is the chief town of the province of that name, which extends from the Thai/Cambodian border to Chrouy Kab (10° 28′ N, 104° 17′ E) (5.54). It stands on the E bank of a river 3½ miles N of **Cap Bumbi** which lies 7¼ miles NW of Chrouy Kab.

There are two approaches to Kampot, one from the W, known as Kinh Ganh Dau, lying N of Mui Kwala (5.36), the N extremity of Dao Phu Quoc, situated 18 miles W of Chrouy Kab, and one from the S known as Chenal Sud, lying on the E side of Dao Phu Quoc.

5.35

Phnum Pouvankhone, which back the coast W of Kampot rise to an elevation of over 1000 m (3281 ft) and are very prominent. **Phnum Bokor,** a nipple 1080 m (3545 ft) high and prominent, is situated at the S end of the range 10 miles N of Mui Kwala (5.36). **Phnum Dong,** 106 m (350 ft) high, situated 1 mile N of Cap Bumbi (5.34) is also prominent.

DAO PHU QUOC

Kinh Ganh Dau

5.36

Kinh Ganh Dau is the channel between the NW extremity of **Dao Phu Quoc** (10° 23′ N, 103° 50′ E) and Kaoh Ses (5.33) 3 miles NW; it leads into **Chhak Veal Renh,** the large sea area enclosed by the N side of Dao Phu Quoc, which belongs to Vietnam to S, and Kaoh Ses and Kaoh Thmei (5.33) to W, and the mainland to N.

On the SE side of Kinh Ganh Dau, **Hon Tray Bui,** 17 m (57 ft) high and covered with trees, lies 1½ miles W of **Mui Da Trai,** the W extremity of Dao Phu Quoc; **Mui Ganh Dau,** the NW extremity of the island, lies 1 mile NNE of Mui Da Trai.

Hon Ban, 13 m (44 ft) high, lies in the entrance to the channel, 1 mile N of Hon Tray Bui.

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Rocher Plat lies within the entrance, ¾ mile NNW of Mui Ganh Dau.

Nui Chao (Pic Kwala), 381 m (1253 ft, charted as 1214 ft) high, lies 1 mile S of **Mui Kwala,** the N extremity of Dao Phu Quoc. **Nui Ham Rong,** 367 m (1206 ft) high, lies 3½ miles SSW of the same point.

A shoal, with a depth of 0·6 m (2 ft) over it, the charted position of which is doubtful, lies 1½ miles WNW of Mui Kwala. **Banc du Loire Inférieure,** with a depth of 3·0 m (10 ft) over it, whose charted position is also doubtful, lies 1¼ miles NNW of Mui Kwala; another 3·0 m (10 ft) patch lies 1 mile N of the same point.

5.37

Anchorage off the N coast of Dao Phu Quoc is not recommended.

Tidal streams in Kinh Ganh Dau. The flow is fairly strong but variable, and depends mainly on the tidal streams.

Directions for Kinh Ganh Dau. Vessels drawing more than 4·6 m (15 ft) should use this channel when approaching Kampot from W. The depths in the fairway are not less than 10·1 m (33 ft) until within 7 miles of Kampot.

When approaching Kinh Ganh Dau from W, pass close N of Hon Ban and Rocher Plat, thence N of Mui Kwala at a distance of not less than 2 miles so as to avoid the dangers lying off it.

The boat channel E of Hon Tray Bui and S of Rocher Plat is not recommended as the ground is foul between them and Dao Phu Quoc, and the set of the tidal streams is irregular.

Caution should be used when standing towards the edge of the coastal bank W of Cap Bumbi (5.34) when approaching Kampot from W, as the bank is steep-to and rocky.

South-western side of Dao Phu Quoc

5.38

The SW side of Dao Phu Quoc is mostly low with isolated hills rising inland. **Nui Dat Do,** 150 m (494 ft) high, is a square hill rising close to the coast 2¾ miles NNW of Mui Hanh (5.44), the S end of the island.

During the NE Monsoon, anchorage can be obtained anywhere off the SW side of Dao Phu Quoc.

5.39

Hon Don Moi (10° 19′ N, 103° 05′ E) with some rocks close SW of it, lies 2¾ miles S of Mui Da Trai (5.36) and 1 mile offshore.

Bai Vong Bau is contained between **Mui Mong Tay,** 4 miles SSE of Mui Da Trai, and **Mui Ong Quoi** 2 miles SE.

Bai Cau Can is entered between Mui Ong Quoi and **Mui Ganh Lon,** 3 miles SE. Rocks with depths of less than 2 m (6 ft) lie close off Mui Ong Quoi and the N shore of the bay. **Xom Cua Can** stands 1 mile above the mouth of a river of that name which flows into the head of the bay.

5.40

Mui Ganh Cau (10° 13′ N, 103° 57′ E), situated 5¾ miles SE of Mui Ong Quoi, is the N entrance point of **Prek Duong Dong.** The S entrance point of the river is marked by a large rock surmounted by a white mast near which is a pagoda.

Duong Dong, the capital of the island, stands on the S side of Prek Duong Dong; it is the centre of an important fishing industry. The entrance to the river is difficult, but small craft can reach the port at all times.

A **light** is exhibited from a white metal framework tower, with a black top, 5 m in height, situated on the S side of Prek Duong Dong. A **beacon** stands on the edge of the reef extending ¾ cable NW from the light-structure.

Anchorage may be obtained by vessels with local knowledge off the mouth of Prek Duong Dong, with the large rock surmounted by a white mast bearing 107° and also in a depth of 11 m (36 ft), 4¼ cables W of the light-structure.

Communications. There is communication by sea with Ha Tien (5.61), but it is interrupted during the SW Monsoon. Duong Dong airstrip is situated ½ mile N of the town.

5.41

Prek Cai Cau flows into the sea 2½ miles SSE of Duong Dong.

Mui Dat Do (10° 03′ N, 103° 59′ E) is situated 2½ miles NNW of Mui Hanh (5.44), the S extremity of the island. **Bai Dat Do** lies between these two points; **Dat Do** village and a small stream are situated at the head of the bay.

Sheltered **anchorage** can be obtained at the head of Bai Dat Do, 2 miles N of Mui Hanh in a depth of 5 m (16 ft), but the swell is felt in this position.

Chenal Sud

5.42

Chenal Sud is entered between Mui Ong Doi (10° 00′ N, 104° 03′ E) (5.47), the SE extremity of Dao Phu Quoc, and Quan Dao Nam Du (5.74), 24 miles SE. Chenal Sud is only navigable by vessels with a druaght of 4·6 m (15 ft) or less.

West side of Chenal Sud

5.43

On the W side of the entrance to Chenal Sud, a number of islands and rocks extend S from Dao Phu Quoc, the outermost being a rock 1½ m (5 ft) high situated 12¼ miles S of Mui Ong Doi.

Hon Da Ban (9° 48′ N, 104° 01′ E), 5 m (18 ft) high, lies ¾ mile W of this rock. **Hon Tay** 68 m (225 ft) high, lies 1¼ miles NE of Hon Da Ban, with a rock ½ m (2 ft) high, ¼ mile W of it. **Hon Dong** 117 m (386 ft) high, lies 3 miles NE of Hon Tay.

Between these islands and Quan Dao An Thoi, 5 miles NW, there is a deep channel.

5.44

Quan Dao An Thoi consists of a group of about 12 islands, islets and rocks which lie within 6½ miles S of Bao Phu Quoc. **Hon Xuong,** 75 m (246 ft) high, with **Hon Mong Tay,** 37 m (124 ft) high, ½ mile S of it, are the SE islets of the group and lie 5½ miles SSW of Mui Ong Doi. **Hon Gam Ghi,** lies ¼ mile SW of Hon Xuong, with **Hon May Rut** (9° 55′ N, 103° 59′ E), 61 m (202 ft) high, ¾ mile farther W. **Hon Kim Qui,** 53 m (174 ft) high, lies ½ mile NW of Hon May Rut and **Hon Vong,** 37 m (121 ft) high, the same distance NE of Hon May Rut. Rocks extend ½ mile NW from Hon Vong.

Hon Vang, 95 m (314 ft) high, **Hon Thom,** the largest of Quan Dao An Thoi, 101 m (328 ft) high, and **Hon Roi,** 94 m (310 ft) high lie N of Hon Xuong.

Hon Dua, 129 m (425 ft) high, lies 4 cables NW of Hon Roi, and is separated from **Mui Hanh** (10° 01′ N, 104° 00′ E), the SW extremity of Dao Phu Quoc, by a channel ½ mile wide, the fairway of which is deep. There is a black and white rock at the NW extremity of Hon Dua.

Tidal streams. Between Mui Hanh and Hon Dua the flow is fairly strong and depends mainly on the tidal stream.

There are channels which are apparently deep

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between the islands, but they should not be used as dangers may exist other than those shown on the chart.

5.45

Between Mui Hanh and Mui Ong Doi, 2½ miles E, there are two shallow bays. **An Thoi,** with a population of 3000, is a fishing and trading village situated in the W bay.

There are two piers at An Thoi, the W pier is 100 m in length and can accommodate vessels of 150 m in length with a maximum draught of 4·3 m, and the E pier is 152 m long with a T-head where there is a similar depth alongside.

Anchorage can be obtained in a depth of 15 m (49 ft) ¾ mile S of An Thoi.

Supplies. Fresh water can be obtained in small quantities but is generally not available during the dry season from December to February. Diesel fuel can be obtained in limited quantities.

5.46

Two islets, both 47 m (155 ft) high, lie off **Mui Con Dong** which separates the two bays mentioned above; the SE islet is **Hon Dam,** and there is a prominent white rock at its NW extremity.

5.47

Mui Ong Doi (10° 00′ N, 104° 03′ E) is the SE extremity of a tongue of land with a rounded summit, 110 m (361 ft) high, which extends 1 mile SE from Dao Phu Quoc.

Anchorage, well sheltered during the SW Monsoon, can be obtained in the E of the two bays close W of Mui Ong Doi; depths in this bay decrease regularly as the shore is approached and depths of 6 m (20 ft) will be found 2¾ cables from the head of the bay where there is a landing place. Care must be taken to avoid the detached shallow banks which lie off Mui Ong Doi.

5.48

Mui Bai Sao, which rises to an elevation of 162 m (534 ft) ½ mile inland, is situated 4 miles N of Mui Ong Doi.

There is a bay between Mui Bai Sao and **Mui Den Phach,** 3¼ miles N. **Vinh Dam** is entered at the head of this bay, 1¼ miles NW of Mui Bai Sao, and affords **anchorage** in a depth of 5 m (16 ft).

Bai Vong is entered between Mui Den Phach and a point 1½ miles N.

5.49

Nui Ham Ninh, 375 m (1233 ft) high, lies 4½ miles N of Mui Den Phach and 1 mile inland. The village of **Ham Ninh,** where there is a custom house, stands at the entrance to a small river 1 mile SE of Nui Ham Ninh. It is connected by road to Duong Dong (5.40).

A **light** is exhibited from a white metal framework tower with red bands, 7 m in height, situated close N of Ham Ninh (10° 11′ N, 104° 03′ E).

5.50

The E side of Dao Phu Quoc, N of Nui Ham Ninh, consists of a table-land **Chaine de Ham Ninh,** at the S end of which is **Nui Da Bac,** 430 m (1410 ft) high, situated 3 miles NNE of Nui Ham Ninh. **Nui Vo Quap (Pic Bai Doc),** a peak 477 m (1567 ft) high, lies 5¾ miles N of Nui Da Bac, and **Nui Chua** (10° 22′ N, 104° 02′ E), 565 m (1853 ft) high, the highest summit on the island, is situated at the N end of the table-land, 2½ miles NNW of Nui Vo Quap and 2½ miles inland.

Anchorage off the E side of Dao Phu Quoc is difficult, due to the irregularity of the bottom. It may, however, be obtained in a depth of 5 m (16 ft), 3 miles off Ham Ninh. There is better anchorage in the SW Monsoon in the same depth in Bai Vong (5.48), N of Mui Den Phach, 3¼ cables offshore, but the landing is bad.

East side of Chenal Sud

5.51

Donai Shoal (9° 58′ N, 104° 20′ E), the charted position of which is doubtful, on which *SS Donai* was reported to have touched bottom in 1898, lies 16½ miles NE of Hon Dong (5.43).

Poulo Cici, situated 9½ miles ESE of **Mui Sao,** the E extremity of Dao Phu Quoc, consists of two islets covered with trees and joined together by a reef; the N islet is 64 m (212 ft) high. These islets lie at the S end of a bank, with depths of less than 5 m (16 ft) over it, which extends 18 miles S from the mainland in the vicinity of Chrouy Kab (10° 29′ N, 104° 17′ E) (5.54).

Rocher Rosita, which dries 0·6 m (2 ft) and is reported to lie ½ mile further NW than charted, lies 4¾ miles NNW of Poulo Cici and on the bank described above. **Rocher du Brandon,** a pinnacle with a depth of 0·9 m (3 ft) over it, lies 8 miles SSE of Cap Bumbi. Numerous fishing stakes will be found N of Rocher du Brandon.

Kaoh Kras (Île Rocheuse), 8 m (26 ft) high, lies on the W edge of the bank, 6 miles W of Chrouy Kab. Île Temple lies 1¼ miles ESE of Kaoh Kras.

Kampot

5.52

Anchorage may be obtained either 1½ miles S of Cap Bumbi in a depth of 5 m (16 ft) or W of Kaoh Kras where the depth is greater.

Tidal streams in the vicinity of Cap Bumbi, as in most parts of the Gulf of Thailand, run for 12 hours when the moon has a high declination N or S, and are subject to great irregularities.

Winds during the months of March and April are usually from SE or E, but strong squalls are occasionally experienced from directions between NW and ENE.

Directions for Kampot. When approaching Kampot from W, after passing through Kinh Ganh Dau (5.37), N of Banc du Loire Inferieure, and N of the 4·3 m (14 ft) shoal 2½ miles E of Mui Kwala, haul to SE so as to keep Mui Kwala bearing more than 272°, until Phnum Dong (5.35) bears 358°, then steer for the anchorage. Small vessels drawing less than 4·5 m can approach Kampot from S via Chenal Sud, but soundings are irregular and extreme caution is advised. Mui Ong Doi (5.47) should be given a berth of at least 5 miles, thence steer to pass W of Rocher Rosita and Kaoh Kras, taking care to avoid the obstruction which lies 4½ miles S of Kaoh Kras.

5.53

The town of **Kampot** owes its importance to the extension of the pepper trade. The neighbourhood is thickly populated. There is a quay, 2½ miles above the custom house which is situated at the mouth of the river. Landing can be effected at any state of the tide.

Directions for entering the river. There are three channels by which junks can enter the river, that NE of Cap Bumbi being the best. The bar has a depth of 0·6 m (2 ft), but within it the depths increase to 3·7 m (12 ft) or more. The channel over the bar is marked by stakes, but no vessel should attempt to enter without local knowledge. A boat can cross the bar at all times when the water is smooth, but during the SW Monsoon the sea breaks along the whole coast at times.

Kampot to the boundary between Cambodia and Vietnam

5.54

Between Chrouy Kab (10° 28′ N, 104° 17′ E) and Mui Nai, 11½ miles SE, the coast is low and forms a bay.

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Chrouy Kab is prominent, with **Phnum Kep (Pic Kep),** 285 m (937 ft) high, situated ½ mile inland. On the point is a settlement with some villas and a reddish coloured bungalow. **Krong Kep,** where there is a custom house and a small mole, is situated 2 miles ENE of the point. At low water, and also with SW winds, landing here is difficult, and the stones which extend from the beach should be avoided.

Anchorage for small vessels with local knowledge may be obtained 1 mile SE of Chrouy Kab.

Between Chrouy Kab and the mouth of **Prek Kampong Trach (Rivière Kompong Trach),** there are two hills on the coast, one 5 miles NW of the river mouth, and **Pnom Ang Kol,** 48 m (157 ft) high, 2 miles W of the river mouth. The river is navigable at high water by junks.

The sea between this stretch of the coast and the numerous islands and dangers off-lying it is only navigable by vessels of very shallow draught with local knowledge.

Charts 3879, 2660a

5.55

The seaward end of the boundary between Cambodia and Vietnam, lies 4 miles N of Mui Nai (10° 22′ N, 104° 26′ E); the administrative boundary established in 1939, thence runs in a SW direction. Quan Dao Hai Tac (5.56) and Dao Phu Quoc already described, form part of Vietnam.

APPROACHES TO HA TIEN

Chart 3879

Quan Dao Hai Tac

5.56

Quan Dao Hai Tac are a group of islands and islets lying on the NW side of the approach to Ha Tien (5.59).

Hon Duoc (10° 15′ N, 104° 18′ E), the S islet of the group, lies 10 miles SW of Mui Nai.

Hon Doc (10° 19′ N, 104° 19′ E), 80 m (262 ft) high, lies 3½ miles NNE of Hon Duoc. On the W side of the group are, from N to S, **Hon Qui, Hon Truc Mon, Hon Banh-it, Hon Mu-u,** and **Hon Nhom,** and on the E side, from S to N, are **Hon Doi, Hon Ngan,** and **Hon Long.** There are also a number of dangers between the islets.

There is anchorage in the SW Monsoon for small vessels with local knowledge, ½ mile E of Hon Doc.

5.57

The following islands and islets form part of Cambodia.

Rocher Déchiré, 2 m (5 ft) high, lies 2½ miles NW of Hon Doc. **Hon Keo Ngua,** with **Hon Kien Vang,** 6 cables WNW of it, lies 2 miles N of Hon Doc.

Hon Dung, 71 m (233 ft, charted as 377 ft) high, lies 2 miles N of Hon Keo Ngua. **Hon Nhi** lies 3 cables SW of Hon Dung, and three islets lie off its NE side, the outer one at a distance of ¼ mile. **Anchorage** may be obtained by small vessels with local knowledge in a depth of 4 m (13 ft), 2 miles E of Hon Tre Mam.

Hon An Tay, 155 m (507 ft) high and wooded, lies 1½ miles N of Hon Dung and 2¼ miles offshore. **Kaoh Tbal,** 67 m high, lies 8 cables SE of Hon An Tay; **Hon Queo,** 40 m high, is the largest of four islets lying up to 1½ miles NE of Hon An Tay.

Anchorage may be obtained in the NE Monsoon in a depth of 4 m (13 ft) under the S side of Hon An Tay.

5.58

Caution. No vessel should attempt to navigate between the islands described in 5.56 and 5.57 without local knowledge.

Ha Tien

5.59

Vinh Thuan Yen is entered between **Mui Nai** (10° 22′ N, 104° 26′ E) and a point 76 m (251 ft) high, 7½ miles SE.

Mui Nai Lighthouse is a white masonry tower on a dwelling, 8 m in height, situated on the point.

Pointe Phao Dai, the N entrance point to **Rach Giang Thanh,** is situated 2¼ miles ENE of Mui Nai. Ha Tien stands on the SW side of the river mouth, close within its entrance. **Sommet Mirador,** 62 m (203 ft) high, lies 9 cables N of Pointe Phao Dai, and **Nui Dai To Chau,** 177 m (583 ft) high, lies ½ mile E of the E entrance point. These hills, together with the gap between them, are remarkable from SW.

Numerous fishing stakes, some of which carry red flags, are met when in the approach to the river, between Quan Dao Hai Tac and Quan Dao Ba Lua (5.64).

Anchorage. Vessels drawing 4·6 m, awaiting to enter the river, are obliged to anchor 1½ miles seaward of Mui Nai Lighthouse. Those drawing less water can anchor in a small bay N of the lighthouse or in the mouth of the river in a depth of 4 m (13 ft) with excellent holding ground.

Directions. When approaching Ha Tien, vessels are recommended to pass between Île de l'Ouest (5.64) and Quan Dao Hai Tac thence keeping the leading lights in line to the anchorage. No vessel, however, should enter the river without local knowledge.

5.60

The bar of Rach Giang Thanh is ½ mile wide; its outer edge is 1½ miles SW of Pointe Phao Dai (10° 23′ N, 104° 29′ E). For a distance of ½ cable, there are depths of only 0·6 m (2 ft) over the bar; the mud is, however, very soft and vessels drawing 3·4 m, and having sufficient power, can enter the river.

A rock, with a depth of 1·2 m (4 ft) over it, lies in the approach to the bar, 1 mile SE of Mui Nai Lighthouse.

A dangerous wreck lies in the approach to the bar 1¼ miles SE of Mui Nai Lighthouse. It is marked by a **beacon** on its W side.

Within the entrance is a lake 2½ miles long, known as **Bai d'Ha Tien,** most of which dries.

Leading lights, which lead over the bar, are established near Ha Tien. The rear light is exhibited from a white metal framework tower, surmounted by a white disc, 16 m in height, situated near the town. The front light is exhibited from a similar structure but surmounted by a white rectangle, 9 m in height, situated on Pointe Phao Dai, 750 m SW of the rear light. These lights are in line bearing 044°, but are moved as requisite to meet changes in the channel.

5.61

Ha Tien (10° 23′ N, 104° 29′ E) is the principal town of the province. There is a quay and two small jetties on the N side of the river, and one jetty on the S side. The quay is 185 m long, with a depth of 2·4 m alongside.

Supplies. Fresh provisions are obtainable.

Communications by sea are maintained with Bangkok and Dao Phu Quoc. **Kinh Vinh Te** connects Ha Tien with Chau Phu (Chau Doc) (10° 42′ N, 105° 07′ E) (chart 3986), situted on Song Hau Giang (Le Bassac), a branch of Mekong River (5.102). A canal also connects Ha Tien with Rach Gia (5.70).

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Approaches to Hon Chong

5.62

Between the 76 m (251 ft) high point (5.59) which forms the S entrance point of Vinh Thuan Yen and **Nui Khoe La** (10° 12′ N, 104° 35′ E) 5½ miles SE, there is an indentation, at the N end of which is **Vinh Ca Tho** and at the S end **Vinh Khoe La.**

Nui Hang Tien, 229 m (751 ft) high, lies 1½ miles S of Nui Khoe La, and close S of the former is the small islet **Hon Lo Coc. Nui Ba He** lies 1 mile SE of Nai Hang Tien.

Mui Ong Thoa is a rocky headland 1½ miles S of Nui Ba He. A range of hills, rising to 200 m (659 ft) in **Nui Tra Duoc,** extends 4 miles NE from Mai Ong Thoa.

Hon Chong

5.63

Hon Chong (Hong Chong) (10° 09′ N, 104° 36′ E) is a town of considerable importance standing at the head of the bay between Nui Ba He and Mui Ong Thoa. To the N of Hon Chong the shore of the bay is low. Pepper is exported in junks during the NE Monsoon.

Anchorage can be obtained by small vessels with local knowledge close off Hon Chong, according to draught; there is no greater depth than 3·7 m (12 ft) off the town. The holding ground is good in a depth of 5 m (16 ft), in a position 3 cables NW of Mui Ong Thoa. During the SW Monsoon the anchorages are untenable and the sea breaks around the off-lying islets but there is some shelter for small craft under Hon Heo (5.65).

Landing can be effected at the pier in the S part of the bay.

Supplies. Beef and fruit are obtainable at Hon Chong.

Communications. There is regular communication by sea with Ha Tien, Kampot and Dao Phu Quoc.

Quan Dao Ba Lua

5.64

Quan Dao Ba Lua extend for a distance of up to 12 miles from the coast W and SSW from Hon Chong.

Outer Island (9° 58′ N, 104° 30′ E), the S islet of the group, lies 13 miles SW of Hon Chong. **Île Escarpée** is situated 3½ miles NNW of Outer Island.

Rocher du Mekong, with a depth of less than 2 m (6 ft) over it, lies 5 miles NNW of Outer Island; **Rocher Arbre,** above-water, lies 1 mile NE of Rocher du Mekong with **Rocher Selle** 1 mile farther N. A rock, which dries 0·6 m (2 ft), lies close SE of Rocher Selle.

Hon Son Thue Nho (10° 06′ N, 104° 31′ E), with some above-water rocks and islets extending 1 mile SW from it, lies 6½ miles SW of Hon Chong, and a group of islets and rocks extend 2½ miles N to Hon Vong from Hon Son Thue Nho.

Île de l'Ouest (10° 09′ N, 104° 20′ E) lies 6 miles W of Hon Vong.

5.65

Hon Nhum Ba, with islets and rocks extending 1 mile SW from it, lies 4 miles WSW of Hon Chong, and is the S islet of a group extending 4 miles N to **Hon Heo.**

This group of islets is separated from the group mentioned in 5.64 by a narrow channel in which there is a least depth of 5·5 m (18 ft). Two islets lie 1 mile and 1½ miles W and **Îles da Lua** 2 miles NW, respectively of Hon Chong.

5.66

Hon Minh Hoa (10° 02′ N, 104° 33′ E), a cone-shaped island 322 m (1059 ft) high, wooded and inhabited, is the largest of Quan Dao Ba Lua, and lies 8 miles SSW of Hon Chong; a rock, above-water, lies ½ mile S of the island.

5.67

Caution. No vessel should attempt to navigate within Quan Dao Ba Lua without local knowledge.

Hon Chong to Rach Gia

5.68

Between Mui Ong Thoa (10° 09′ N, 104° 38′ E) (5.62) and **Mui Hon Chong,** a rocky headland 160 m (527 ft) high, 2 miles E, there is a slight indentation in which some above-water rocks lie close offshore. **Hon Phu Tu,** 61 m (200 ft) high, lies close SW of Mui Hon Chong.

Rocher Sans Nom, 1½ m (5 ft) high, lies 5 miles SE of Mui Hon Chong.

Vinh Cay Duong, which is shallow and sandy, is entered between Mui Hon Chong and **Nui Hon Dat,** 250 m (819 ft) high and cone-shaped, 15 miles ESE. Several navigable canals enter Vinh Cay Duong.

5.69

Vinh Rach Gia is entered between Nui Hon Dat and a point 17 miles S. There are general depths from 0·6 to 1·5 m (2 to 5 ft) in the bay.

Hon Tre lies in the middle of the entrance to the bay, 7 miles SSW of Nui Hon Dat. The island is cone-shaped and 394 m (1295 ft) high. There is a plantation at the S end of the island, off which temporary **anchorage** may be obtained by vessels with local knowledge.

Rach Gia

5.70

The mouth of **Rach Gia** is situated 12 miles SE of Nui Hon Dat. The bar of this river dries at very low tides.

The port of Rach Gia consists of a canal, entered between two moles extending WSW; the moles consist of rows of wooden piles, and the channel between them is 45 m wide. There is a jetty at which river craft lie alongside and there are quays on both sides of the canal within the moles.

The town of Rach Gia where there is a custom house with a flagstaff stands near the mouth of the river.

Rach Gia Light-structure is a black metal framework tower, 17 m in height, situated near the custom house at Rach Gia. Within this light-structure the entrance to the river is marked by lights.

5.71

Tidal streams over the bar sometimes attain a rate of 3 to 4 knots, and in the season of high river (May to October) the flow always sets seaward; in the low river season the flow usually changes direction though the outgoing is stronger than the in-going. Slack water lasts barely ¼ hour, but at times may be irregular.

Communications. A good road and a canal, navigable by boats drawing 1·8 m (6 ft), connects Rach Gia with Long Xuyen (10° 23′ N, 105° 25′ E), situated on a branch of Mekong River (chart 3986), 34 miles NE. A canal, suitable for vessels of similar draught, connects Rach Gia with Ha Tien (5.61).

5.72

The mouth of **Song Cai Lon** is situated in the SE part of Vinh Rach Gia. Although there is only a depth of 0·9 m (3 ft) over the bar at high water, within the bar in favourable conditions vessels drawing 1·8 m can reach Mekong River and Ho Chi Minh City by inland waterways.

Off-lying islands

5.73

Hon Rai (9° 48′ N, 104° 38′ E), 19 miles S of Mui

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Hon Chong, is 404 m (1327 ft) high, table-topped and wooded; the sides of its summit are very steep. The village of **Lai Son** is situated in a small bay on the S side of the island. A pinnacle rock with a depth of 0·6 m (2 ft) over it, lies 2 cables off **Mui Tay,** the W extremity of the island; a detached shoal with a depth of 3·4 m (11 ft) over it, the existence of which is doubtful, is charted 1¼ miles SE of Mui Tay. Small vessels with local knowledge can obtain anchorage in quiet weather off the bay on the S side of the island, in a depth of 5 m (16 ft).

Quan Dao Nam Du

5.74

Hon Nam Du (9° 41′ N, 104° 20′ E), the principal island of **Quan Dao Nam Du,** has a sharp peak 308 m (1013 ft) high near its centre, and on its E side 1½ miles from its S extremity is a monument; a rock with a depth of 0·6 m (2 ft) over it, lies 4½ cables NE of this monument and 1¼ cables offshore.

Three islets lie within 1¼ miles S of Hon Nam Du; the inner one is **Hon Hoa Lu** and is 96 m (315 ft) high, the middle one is **Hon To Yen,** and the outer one, **Hon Mong Tay,** is 104 m (340 ft) high. A rock, 2 m (6 ft) high, lies 1¼ cables S of Hon Mong Tay, and a shoal, with a depth of 4·6 m (15 ft) over it, and steep-to, lies 1 cable farther S.

Banc du Beryl, with a depth of 0·9 m (3 ft) over it, lies off the W side of Hon Nam Du, 1¼ miles W of the 308 m summit; the charted position of this rock is approximate. There is an obstruction 5½ cables ESE of Banc du Beryl and another obstruction ½ cable SE of the same rock.

Hon Co Son lies ½ mile W of the N end of Ho Nam Du, with another islet close S of it. A rock, with a depth of 1·5 m (5 ft) over it, and marked by a buoy moored close W of it, is situated 2½ cables W of the S extremity of Hon Co Son.

Anchorage may be obtained by vessels with local knowledge in the entrance to a small bay on the NW side of Hon Nam Du, but there is a rock, with a depth of 4·9 m (16 ft) over it, 2 cables NNW of the S entrance point to this bay, which should be avoided.

5.75

Hon Moc, 104 m (343 ft) high, lies 4 cables N of Hon Nam Du with a rock, with a depth of 1·2 m (4 ft) over it, in the passage between them. Two patches, one 9·1 m (30 ft) and the other 8·8 m (29 ft) lie 6 and 4 cables respectively E of the S end of Hon Moc. A coastal bank fringes the N end of the island extending 1 cable offshore.

An islet, 47 m (154 ft) high, with an above-water rock ¼ mile WNW of it, lies ½ mile WNW of Hon Moc.

Anchorage may be obtained ½ mile W of Hon Moc in a depth of 15 m (49 ft).

Hon Gian, the N island of Quan Dao Nam Du, 104 m (343 ft) high, lies ½ mile NE of Hon Moc.

Hon Nhom, 59 m (194 ft) high, lies 4 cables E of the N end of Hon Nam Du.

5.76

Hon Mau (9° 38′ N, 104° 23′ E), over 60 m (197 ft) high, lies 2½ miles SE of the S extremity of Hon Nam Du. **Anchorage** may be obtained during the NE Monsoon 5½ cables SW of the W extremity of Hon Mau in a depth of 13 m (43 ft).

Hon Botra, 89 m (294 ft) high, lies ¾ mile NNW of Hon Mau. An islet lies close off its S extremity, with another islet 6 cables ENE.

Hon Dau lies ¼ mile NE of Hon Botra; a bank extends 3½ cables W from the S end of Hon Dau, and near its W edge are some islets, the SE of which is 1 m (3 ft) high. A similar bank, on which there are two islets, the N of which is 58 m (190 ft) high, extends ¾ mile N from Hon Dau.

Hon Truong, 105 m (345 ft) high, lies 6 cables NW of Hon Dau. An islet, 50 m (164 ft) high, lies close off the S extremity of the same island.

Hon Truoc, 90 m (295 ft) high, is the N island of the E chain of islets and lies 1¼ miles E of the N end of Hon Nam Du. **Roche de l'Aspic,** with a depth of 0·6 m (2 ft) over it, lies 3 cables NNE of Hon Truoc. Another rock, awash, whose charted position is doubtful, lies 2 cables NW of Roche de l'Aspic.

The best **anchorage** in Quan Dao Nam Du for vessels with local knowledge in the SW Monsoon is E of the summit of Hon Nam Du, with the E extremity of Hon Nhom in line with the S extremity of Hon Gian, bearing 345°, in a depth of 7 m (23 ft); the holding ground is good, but squalls come off the high land.

Charts 3879, 3985

Rach Gia to Mui Bai Bung

5.77

From the S entrance point of Vinh Rach Gia (9° 50′ N, 104° 54′ E), the coast for 46 miles to the mouth of Song Ong Doc, is low and intersected by several small streams.

Chart 3985

Hon Da Bac (9° 11′ N, 104° 48′ E), two small rocky outcrops 30 m (97 ft) high, lies on the coast 9 miles N of the mouth of **Song Ong Doc,** which river is navigable by vessels drawing 1·8 m.

Song Dong Cung enters the Gulf of Thailand 3 miles S of Song Ong Doc.

5.78

Mui Ba Quan (8° 46′ N, 104° 48′ E), the N entrance point of **Cua Song Bai Hap** is situated 12 miles S of the mouth of Song Dong Cung. Cua Song Bai Hap is a shallow bay at the head of which are the mouths of two rivers, **Song Bai Hap** in the NE part of the estuary and **Song Cua Lon,** 3 miles S.

A bar, which almost dries, extends 4 miles from the mouths of these rivers; it is covered with fishing stakes and is continually extending seaward.

Mui Bai Bung (8° 37′ N, 104° 43′ E), situated 10 miles SSW of Mui Ba Quan, is the NE entrance point of the Gulf of Thailand and the SW entrance point of Qua Song Bai Hap. It is also the SW extremity of Vietnam. It is low, covered with trees and fringed by a shallow bank. There are numerous fishing stakes on the coastal bank W of Mui Bai Bung.

5.79

Caution. The charts in the vicinity of Mui Bai Bung are based on old and incomplete surveys and in 1965 the coastal bank in this area was reported to have extended W. Depths of less than 1·5 m (5 ft) were found up to a position 8½ miles W of Mui Bai Bung; a similar depth extended N for 10 miles from this position. Depths of less than 15 m (49 ft) extended up to 15 miles SW of the point. Vessels navigating in this vicinity should use extra caution and round Mui Bai Bung at a distance of not less than 15 miles or more depending on the draught of the vessel.

Off-lying islands and dangers

5.80

Hon Chuoi (8° 57′ N, 104° 31′ E), 149 m (489 ft) high and wooded, lies 22½ miles NW of Mui Bai Bung; it is cliffy, steep-to and has the appearance of two islands

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from S. **Hon Buong,** 50 m (163 ft) high, lies 4 miles SSE of Hon Chuoi, and 15 miles offshore. A ledge of rocks extends ¼ mile E from the island.

In 1973 a depth of 8·2 m (27 ft) was reported to lie 11 miles WSW of Hon Buong.

An obstruction was reported in 1914 by the *Heijun Maru*, 19 miles WSW of Mui Bai Bung; its charted position is approximate and it was searched for unsuccessfully in 1917.

An extensive bank, which has not been surveyed, and has depths from 15 to 18 m (49 to 59 ft) over it, lies 70 miles WSW of Mui Bai Bung.

A rock, which dries 1·2 m (4 ft), lies 14 miles SW of Mui Bai Bung.

SOUTH COAST OF VIETNAM

Charts 3986, 2660a

5.81

Numerous rivers and canals most of which lead into the Mekong River, intersect the interior of the S part of Vietnam in every direction. Some of these are navigable by small vessels and nearly all are navigable by native craft, by which the commerce of the country is carried on. Most of the trade passes through these waterways to Ho Chi Minh City (5.149).

The S coast of Vietnam from Mui Bai Bung (8° 37′ N, 104° 43′ E) to Mui Vung Tau (5.125), 174 miles NE, is low, inundated by the sea at times and in most parts the tops of the trees are only visible at a distance of 11 or 12 miles. The whole coast is fringed by banks of sand with depths from 2 to 5 m (7 to 16 ft) over them, which extend offshore for distances of up to 15 miles in places.

As the coast is low and destitute of any particular marks, vessels proceeding to Mui Vung Tau from W should be careful to avoid it; after sighting Hon Khoai (5.84) they should make for Les Deux Frères (5.86) and Con Son (5.87) and then steer for Mui Vung Tau.

5.82

Caution. Mariners are cautioned that unknown dangers may exist in the approaches to the mouths of Mekong River between the meridians of Hon Khoai (8° 26′ N, 104° 49′ E) and Dao Phu Qui (2.90) (10° 30′ N, 108° 59′ E), and also that less depths than charted may exist on the shoals already discovered. A survey of this area, started in 1929, which was still in progress in 1950, disclosed several dangers which were hitherto unknown, especially ESE of Mui Vung Tau.

The area bounded on its W side by Charlotte Bank (2.85), Con Son and Mui Vung Tau, and on its E side by a line drawn from Mui Vung Tau to Callou Bank (9° 20′ N, 107° 35′ E) (2.85) and extended seaward may, however, be considered the most free of danger, but see 2.85.

5.83

Tidal streams off the coast between Mui Bai Bung and Mui Dinh (6.28) (11° 22′ N, 109° 01′ E) set generally SW on the rising tide and NE on the falling tide. Near the mouths of Mekong River, the stream sets NW into the rivers and on the falling tide SE out of them.

According to the limited information available, the rate attained by the stream, off the coast, is about 1 knot. Near the rivers, it may increase possibly to 1½ knots, which is the approximate rate in the lowest reaches of the Mekong delta.

Chart 3986

Hon Khoai

5.84

Hon Khoai (Poulo Obi) (8° 26′ N, 104° 49′ E) lies 12½ miles SE of Mui Bai Bung (5.78) and 7 miles offshore; it is 319 m (1014 ft) high at its S end and is densely wooded. In 1948, a house with a red roof stood at the head of the S bay, on the N side of the island.

Hon Khoai bearing 033°, 6 miles
(Original dated 1933)

Hon Khoai Lighthouse is a square granite tower and dwelling, 16 m in height, situated on the E side of the summit. Owing to the elevation of the island, the arc over which the light is obscured increases as the island is approached within a distance of 9 miles.

Hon Doi Moi lies close off the N extremity of Hon Khoai with a rock, with a depth of less than 2 m (6 ft) over it, between them. A bank with depths of less than 5 m (16 ft) over it, extends 1½ miles NW from Hon Khoai.

Hon Sao, 174 m (572 ft) high and wooded, lies ¾ mile SE of Hon Khoai. In 1965 depths from 5·5 to 11 m (18 to 36 ft) were reported to lie up to 2 miles S of Hon Sao. **Hon Go,** 36 m (118 ft) high and wooded, lies 2 cables ENE of Hon Sao. **Hull Rock,** 10 m (31 ft) high, lies 2½ miles SE of Hon Sao.

Tidal streams E of Hon Khoai set NW on the rising tide and SE on the falling tide. The rate may occasionally exceed 1½ knots.

Anchorage for small vessels with local knowledge can be obtained in the bays on either side of Hon Khoai, according to the monsoon, about ½ mile offshore. Larger vessels should anchor farther off. In 1940 the French vessel *Admiral Charner* anchored in a depth of 18 m (59 ft) with good holding ground, 1 mile WSW of Hon Sao. Anchorage may also be obtained on the bank midway between Hon Khoai and Hon Sao in a depth of 5 m (15 ft).

5.85

To the E of Mui Bai Bung (8° 37′ N, 104° 43′ E), for a distance of 17 miles, depths of less than 10 m (33 ft) extend 10 miles offshore. A bank with a depth of less than 5 m (16 ft) extends offshore from this point to within 2 miles NW of Hon Khoai. **Marsh Reef,** consisting of rocks with depths of less than 2 m (6 ft) over them, lies on this bank 3½ miles N of Hon Khoai.

Vessels should not attempt to pass between Mui Bai Bung and Hon Khoai.

5.86

Royalist Bank (8° 11′ N, 105° 11′ E), with a depth of 11·0 m (36 ft) over it, lies 27 miles SE of Hon Khoai.

St Marcouf, a shoal with a depth of 7·0 m (23 ft) over it was reported in 1958 to lie 20 miles NW of Royalist Bank and 15 miles offshore.

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Les Deux Frères (8° 35′ N, 106° 05′ E) are two islets, 4 miles apart in a NE direction, situated 60 miles ENE of Royalist Bank. **Hon Trung Nho,** the SW islet, is 12 m (39 ft) high with patches of vegetation; it appears white from E and the sea breaks heavily on its E side during strong winds. **Hon Trung Lon,** the NE islet is 46 m (151 ft) high, and the upper part is covered with vegetation.

CON SON

Charts 1000, 3986

5.87

Con Son (8° 42′ N, 106° 36′ E), formerly **Archipel de Poulo Condore,** belonging to Vietnam, consists of a group of twelve islands lying in the track of vessels proceeding between Singapore and Ho Chi Minh City, and 45 miles from the coast of Vietnam. They form a useful mark in making a landfall on the mainland coast from S. See view 3.

Con Dao (Grand Condore) the principal and largest island of the group, is mountainous; **Grand Sommet,** situated in the S part of the island, has an elevation of 609 m (1998 ft, charted as 1933 ft), and is flat.

Hon Ba (Petite Condore) lies close off the SW side of Con Dao, separated from it by **Cua Hong Dam,** a narrow passage navigable by boats at high water only, which is entered 2¼ miles W of Mui Ca Map (Bai Nhut) (5.95), the SE extremity of Con Dao. **La Dent,** the summit of Hon Ba, situated on the E side of the island has an elevation of 341 m (1119 ft, charted as 1083 ft), and is prominent from S or W.

Hon Vung lies close off the S extremity of Hon Ba. **Banc d'Hon Vung,** with depths from 5·8 to 9·4 m (19 to 31 ft) over it, lies from 2 to 12 cables E of the islet.

5.88

Ben Dam (Baie du Sud Ouest) is entered between **Mui Ba Non (Pointe Ouest)** (8° 40′ N, 106° 32′ E), the NW extremity of Hon Ba, and a point on Con Dao 1½ miles NE. The bay is well sheltered by the surrounding hills, except from NW, but the wind is seldom strong from that quarter; heavy squalls, however, necessitate caution.

Anchorage may be obtained in a depth of 11 to 13 m (36 to 43 ft) with good holding ground of gravel and mud.

5.89

Hon Troc, 61 m (200 ft) high, lies 1½ miles NNE of Mui Ba Non, and is connected to the W side of Con Dao by a shallow ridge.

Hon Tre Lon (8° 42′ N, 106° 32′ E), 124 m (407 ft) high with an islet close off its E extremity, lies 1 mile NW of Hon Troc. A **beacon** (white triangular; square topmark) 4½ m in height, stands near the centre of the islet situated off the E end of Hon Tre Lon.

Hon Tre Nho (Hon Thre Nho) lies 2½ miles NE of Hon Tre Lon, and 8 cables off the NW side of Con Dao. Reefs and above-water rocks extend a short distance from the W side of Hon Tre Nho and 1 cable from its NW side.

5.90

Mui Dong Bac (Pointe Dai Mui) (8° 45′ N, 106° 40′ E) is the NE extremity of Con Dao.

Hon Trung (Rocher Blanc) (8° 47′ N, 106° 43′ E), 55 m (180 ft) high, is a solitary steep-to islet lying 3¼ miles NE of Mui Dong Bac.

5.91

Vinh Dam Tre, entered 1 mile SSW of Mui Dong Bac, is shallow and its entrance is encumbered with rocks rendering it of no use to navigation.

5.92

Vinh Dong Bac (Bai du Nord-Est) is entered N of **Mui Ta Be (Mui Con Chim)** the extremity of a rocky peninsula situated 3¾ miles S of Mui Dong Bac. A radio mast, 190 m (623 ft) high, stands at the head of the bay 2¼ miles NW of Mui Ta Be and is marked by air obstruction lights. Vinh Dong Bac is free from danger but the depths decrease rapidly within the 10 m (33 ft) line.

Anchorage may be obtained in Vinh Dong Bac, sheltered in the SW Monsoon, in a depth of 13 m (43 ft), mud.

5.93

Hon Cau (8° 42′ N, 106° 44′ E), a wooded islet 241 m (791 ft) high, lies 4½ miles E of Mui Ta Be.

5.94

Hon Bai Canh (8° 40′ N, 106° 40′ E) is a large wooded island situated ¾ mile SE of Mui Ta Be, from which it is separated by a deep channel; it attains an elevation of 351 m (1152 ft), charted as 1040 ft) in its W part.

Hon Bai Canh Lighthouse is a white square tower on a dwelling with a red roof, 16 m in height, situated near the E extremity of the island.

Hon Bong Lan (Hon Bong Lang) lies 2¾ cables S of Hon Bai Canh.

5.95

Vinh Con Son (Baie du Penitencier) is entered

(5.87.1) Con Son from SSW
(Original dated 1928)

(5.87.2) Con Son from N
(Original dated prior to 1953)

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between Mui Ta Be and **Mui Ca Map (Bai Nhut)** (8° 38′ N, 106° 36′ E) the SE extremity of Con Dao, 4 miles SW. Mui Ca Map is a steep point rising to an elevation of 300 m (984 ft) 4 cables NW. Vinh Con Son is only suitable during the SW Monsoon.

Hon Tai (Hon Tai Lon), with an elevation of 170 m (558 ft), is situated 1 mile E of Mui Ca Map. **Hon Nghe,** with a prominent lime kiln on it, lies near the extremity of the reef extending 1½ cables E from Hon Tai.

Banc des Tortues, with general depths of 5·5 to 11·0 m (18 to 36 ft) over it, and with shallow patches from 4·0 m to 5·2 m (13 to 17 ft), extends from the W side of Hon Bai Canh to the N end of Hon Tai.

Hon Chat (Hon Chac Lon) lies midway between Hon Tai and Mui Co Map. The coastal reef extends 2¼ cables ENE from Hon Chat; near the extremity of this reef is Hon Chac Nho.

5.96

Vinh Con Son can be approached by three channels; from NE between Mui Ta Be and Hon Bai Canh; from SE between Hon Nghe and Hon Bai Canh; and from S between Mui Co Map and Hon Chat.

Two detached shoals lie near the centre of the deeper water of the bay; the shallowest of these, **Roche du Courrier** with a depth of 5·8 m (19 ft) over it, lies 1 mile SW of the W extremity of Hon Bai Canh. Inside the line joining the entrance points, the N part of the bay is encumbered by detached shallow patches; **Banc du Convict,** which dries 0·3 m (1 ft), lies near the outer edge of this area.

5.97

A prominent white rock is situated on the SW shore of Vinh Con Son, 1¼ miles NW of Mui Ca Map. A **light** is exhibited from a structure on the rock.

Leading lights are established on the NW shore of Vinh Con Son. The rear light is exhibited from a white pyramidal tower, 9 m in height, situated 1¾ miles W of Mui Dat Gioc; the front light is exhibited from a similar structure, 7 m in height, situated 5 cables SE of the rear light. In line, bearing 339°, these lights lead into **Mouillage de la Pierrè Blanche,** W of Roche du Milicien.

A **light** is also exhibited from the head of the pier at **Con Son (Poulo Condore)** a village situated at the head of the bay.

Anchorages. Anchorage for deep draught vessels, which must enter by the NE channel (2.96) may be obtained, in depths from 11 to 13 m (36 to 43 ft), with the summit of Hon Tai bearing 182°, and the N extremity of Hon Bong Lan, 095°.

During the strength of the SW Monsoon, vessels drawing less water may anchor W of the above position; although the squalls are strong here, the holding ground is good, grey mud. There appears to be good anchorages, in depths of 8 to 9 m (26 to 30 ft), with Mui Ca Map bearing between 199° and 176° and Hon Bong Lan between 092° and 098°.

Anchorage may also be obtained in Mouillage de la Pierré Blanche, with the head of the pier at Con Son village bearing 010° distant 8 cables, in depths of 6 to 7 m (20 to 23 ft).

5.98

Directions for Vinh Con Son. When approaching from NW, keep in mid-channel between Mui Ta Be and Mui Sung Xinh, thence keep Hon Trung (5.90) open twice its breadth SE of Mui Ta Be, the latter bearing 026°. When the light-structure on the prominent white rock bears 256°, Roche du Courrier will have been passed and thence steer for Mui Ca Map and anchor as convenient.

When entering from SE, steer NW to pass 1 cable NE of Hon Nghe, where the channel between that islet and Banc des Tortues has depths of 10 m (33 ft) in the fairway.

When entering from SW steer NE to pass through the channel between Mui Ca Map and Hon Chat which is deep, but the depths decrease somewhat rapidly N of the entrance.

5.99

Con Son village (5.97), with a pier (8° 41′ N, 106° 36′ E), is situated at the head of Vinh Con Son. Loading can be effected at the pier at all times except at low water. There is a Penal Settlement here.

Facilities. There is a small hospital.

Supplies. Poultry is plentiful and some fruit is available, but there is no fresh water.

Communications. Con Son is connected by cable with Ho Chi Minh City, and Pontianak, Borneo; see *Indonesia Pilot, Vol I.*

Chart 3986

5.100

Caution. The whole of the area between Hon Khoai (5.84), Royalist Bank (5.86), Con Son and the approaches to Mekong River is imperfectly surveyed. The bottom is irregular and there are many relatively shallow patches and wrecks, charted seaward of the 10 m (33 ft) line. It should be noted that Hon Bai Canh Light (5.94) is obscured to W of Con Son. Large vessels are advised to navigate with extreme caution in this area. Only those dangers with names are mentioned.

HON KHOAI TO MEKONG RIVER

5.101

Cua Bo De (8° 46′ N, 105° 13′ E), the mouth of a river which connects with Gulf of Thailand, lies 33 miles ENE of Mui Bai Bung. The entrance to Cua Bo De is indicated by a direction light bearing 330°. The approach to the entrance of the river is marked by light-buoys and buoys; Entrance light-buoy is moored 6½ miles SSE of the entrance to the river.

Cua Ganh Hao lies 20 miles NNE of Cua Bo De. A bar which dries at very low tides obstructs the entrance to Song Ganh Hao, 1 mile offshore. Two mooring buoys are situated 7 miles SE of the river mouth. During the SW Monsoon junks ascend Song Ganh Hao as far as the town of **Quan Long (Camau),** 20 miles NW of the river mouth, and can reach the Gulf of Thailand by inland waterways.

Song My Thanh (9° 24′ N, 106° 09′ E) enters the sea 50 miles NE of Cua Ganh Hao. The river connects with the town of **Bac Lieu (Vinh Lai)** which lies 4 miles inland and 25 miles WSW of the mouth of the river.

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MEKONG RIVER

Charts 2414, 3986, 1261

5.102

Mekong River, is one the world's great rivers, and is 2800 miles long. Rising in central Tibet it flows through China, Burma, Laos and Cambodia before reaching its delta in the S part of Vietnam. For the greater part of its length it runs through steep gorges and over dangerous rapids, and it is not until it reaches **Kratie** in the central part of Cambodia, 105 miles above Phnom Penh (11° 36′ N, 104° 54′ E), that it becomes a wide slow-flowing river suitable for navigation by ocean-going vessels.

At Phnom Penh, the capital of Cambodia, 200 miles from the sea, it divides into two branches, which flow nearly parallel with one another through Vietnam to the China Sea. See also 1.50 and 1.55. The Mekong River is also joined at Phnom Penh by a river flowing SSE from **Toule Sap,** a lake 80 miles long.

Song Hau Giang (Le Bassac), the W of the two branches of the Mekong River, takes a SSE direction from Phnom Penh as far as **Chau Phu (Chau Doc),** a distance of 55 miles down river. At Long Xuyen (10° 23′ N, 105° 25′ E) (5.71), 80 miles SSE of Phnom Penh, Song Hau Giang is connected by canal with Vinh Rach Gia (5.69) in the Gulf of Thailand.

At its mouth, Song Hau Giang is divided into two branches by islands. Cua Tran De (Tranh De) is the SW branch and Cua Dinh An, the NE branch. (5.104).

Song Tien Giang, the E branch of the Mekong River, takes a SE course from Phnom Penh. Near Vinh Long (10° 16′ N, 105° 54′ E) (5.115), 102 miles SE of Phnom Penh, a branch diverges from Song Tien Giang S, and discharges by two mouths, the SW one of which is Cua Cung Hau, and the NE one Song Co Chien (5.105) 10 miles E of Vinh Long. Two other branches, Song Ham Luong and Song Ba Lai, branch off from the main stream and enter the sea 35 miles SE. The main stream, now known as Song My Tho, flows on past the town of My Tho (5.114), 25 miles ENE of Vinh Long, and finally enters the sea by two mouths, Cua Dai the SW, and Cua Tieu the NE.

Chart 3986

Mouths of Mekong River

5.103

The principal mouths of the Mekong River have depths of from 2·1 to 3·0 m (7 to 10 ft) over their bars. Above the bars, the depths increase in most of the rivers. The rivers can only be navigated by vessels with local knowledge.

The land in the vicinity of all the mouths is low and subject to frequent changes in consequence of the accumulation of the alluvial deposit brought down by the different branches of the river.

5.104

The shallow banks fronting **Cua Tran De (Tanh De)** and **Cua Dinh An** extend from 9 to 10 miles offshore. **Pointe de Hoi Binh** (9° 28′ N, 106° 13′ E) is the W entrance point of Cua Tran De, and 3 miles farther SE are **Bancs du My Thanh,** with depths from 0·3 to 1·8 m (1 to 6 ft) over them.

The approach to Cua Dinh An is marked by buoys. The seaward one is No 1 Light-buoy (black conical; light flashing white every 2½ seconds) moored 9½ miles ESE of **Pointe de Long Khanh,** the N entrance point of Cua Dinh An; farther NW, the channel is marked by odd-numbered buoys painted black and even-numbered buoys painted red.

Charts 1261, 3986

5.105

Cua Cung Hua and **Cua Co Chien** have a common entrance 5 miles wide, 21 miles NE of Pointe de Long Khanh (9° 32′ N, 106° 24′ E), the coast between being low and covered with mangrove. There is a clump of trees on the SW bank of Cua Cung Hau and a fort on the NE bank at the SE extremity of **Île Long Hoa,** which separates the two mouths. The shallow banks fronting these mouths extend 11 miles offshore and partly dry. The bar has a least depth of 1·8 m (6 ft) over it. There are some fishing stakes in the entrance to Cua Cung Hau, within 2½ miles SE of the SW entrance point.

Chart 1261

5.106

Cua Ham Luong, 10 miles NNE of Cua Cung Hau, is not buoyed and is difficult to enter; banks, with depths of less than 5 m (16 ft) over them, and parts of which dry, extend 9 miles from the entrance.

Song Ba Lai (Balai), which is only suitable for small craft, is entered 5½ miles NE of the N entrance point of Cua Ham Luong.

Charts 1261, 1016

5.107

Cua Dai and Cua Tieu are the two N mouths of Song Tien Giang (5.102), the E branch of Mekong River, and are separated from one another by **Cua Lao Loi Quan.** Fishing stakes, some being old and invisible, are numerous on the banks fronting these entrances.

Cua Dai, the S of these two mouths, is entered 10 miles N of the entrance to Song Ba Lai. The entrance is seldom used. The coastal bank, with depths of less than 5 m (16 ft) over it, extends 7 miles from the S entrance point of Cua Dai. **Banc Ilo-Ilo,** which dries 0·6 m (2 ft), extends 7 cables ESE. **Hon Ilo-Ilo (Con Cong)** lies on this bank. Cua Dai has depths of 2·1 m (7 ft) over its bar on the S side of this bank.

5.108

Cua Tieu, the NE mouth of Mekong River, is the only one used by vessels proceeding to My Tho and beyond. It is entered between the NE extremity of Cu Lao Loi Quan and **Pointe du Mirador** (10° 16′ N, 106° 45′ E), 6½ cables NNE.

A **light** is exhibited from a circular tower on piles, situated on the S side of **Banc Norodom,** 2¾ miles ESE of Pointe du Mirador.

Cua Soirap No 1 Light-buoy (black can; light group flashing white showing Morse code 'A') is moored E of the bar 12 miles ESE of Pointe du Mirador.

A dangerous wreck, whose charted position is approximate, lies 2¼ miles ESE of Cua Soirap No 1 Light-buoy; it is marked by a buoy (red can) moored close E of it.

CTI Light-buoy (black; light flashing white every 2½ seconds) lies 7 miles ESE of the same point.

No 2 Light-buoy (red conical; light flashing red every 4 seconds; radar reflector) is moored 8 cables SE of CTI Light-buoy. No 3 Buoy (black can; radar reflector) is moored 3 miles SE of Pointe du Mirador.

There is a depth of 2·1 m (7 ft) over the bar of Cua Tieu, but vessels should not cross it without local knowledge. Abreast Pointe du Mirador (10° 16′ N, 106° 45′ E) the channel is obsructed by fish traps, and in this portion of the channel, large isolated fishing stakes, invisible at night, constitute a danger to navigation.

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Above these obstructions, navigation is reported to be simple.

The river is tidal for about 50 miles from the entrance.

5.108a

Water level. The water level in the Mekong River is low from February to June, being lowest in April and May, and high from July to December, highest in August to October.

5.109

Tidal streams and currents. During the low-river season, the flow is affected by the tidal streams as far as Phnom Penh; during the high-river season the effect of the tidal streams is apparent to about Sa Dec (5.116). At and above Vinh Long, the direction is always seawards.

Within the river mouths, the flow attains a rate of from 3 to 4 knots during the high-river season on the outgoing stream. In the low-river season it may reach 1½ to 2½ knots with large tides. The out-going stream is always greater than the in-going.

Between Vinh Long and Phnom Penh in the high-river season rates from 3 to 4 knots may be expected. The strongest flows are met between Kratie and **Khône** (13° 56′ N, 105° 54′ E), 90 miles N, where a rate of 9 knots may be attained in the narrows. To the S of Kratie rates do not usually exceed 6 knots in the narrows.

During the NE Monsoon, from November to March, the combined effect of currents and tidal streams sets SW towards the banks fronting the Mekong delta, over which there is then a considerable sea. The direction varies from WSW to SSW, and its rate, which is greatly influenced by the wind is sometimes as much as 2 knots. Near the delta the rate of this combined effect increases with the flood stream entering the rivers and decreases with the ebb.

Between Cua Cung Hau and Song Ba Lai, during the NE Monsoon in the mouth of April, an eddy has been observed setting E at a rate of 2 to 2½ knots. To the S of Cua Cung Hau this eddy was observed to set SE and to diminish in rate; it ceases in the vicinity of Cua Dinh An.

In position 10° 02′N, 106° 56′ E, the flow sets WSW on the rising tide and NE of the falling tide, attaining a maximum rate of 1 knot with a range of tide of 4 m at Mui Vung Tau.

5.110

Pilotage on the Mekong River is compulsory for ocean-going vessels. A Vietnam pilot is embarked at Baie des Cocotiers (5.130), 1½ miles NNW of Mui Vung Tau, who will take the vessel up river, via Cua Tieu and Song Tien Giang, to the frontier between Vietnam and Cambodia (10° 56′ N, 105° 12′ E), where a pilot from Cambodia will take over for the passage up to Phnom Penh. Both countries maintain a pilot station near the frontier between them; Vietnam at **Tan Chau** and Cambodia at **Phum Kaam Samma Kraon.**

Vessels bound for Phnom Penh should signal 48 hours in advance, their ETA at Mui Vung Tau to 'Mekong Pilotage, Ho Chi Min City' and their ETA at the Cambodian border to the 'Port Captain, Phnom Penh' through Ho Chi Min City coast radio station.

There are no Admiralty charts showing details of the river; French charts of the river are available in Ho Chi Min City but these only suffice to give an indication of general direction and assist in the calculation of speed 'made good'.

On the return journey from Phnom Penh, it is recommended that a vessel sails in the forenoon so that as much as possible may be made of daylight. Except at neaps, when the 120-mile bar may present a problem, a vessel should be able to reach the 78-mile bar regardless of the time of high water at Mui Vung Tau. Whether the latter bar is crossed on the same tide, and at what time the vessel will weigh in the morning, will depend on the time of high water at Mui Vung Tau.

5.111

General directions from Cua Tieu to Phnom Penh. Having embarked a pilot at Baie des Cocotiers (chart 1015), a vessel should arrive at the entrance bar of Cua Tieu at such a time so as to have under keel clearance of 1·2 m (4 ft), and then proceed up river on the flood stream. It is possible that the pilot will wish to cross the 78-mile bar on this tide before anchoring, even if this entails navigating after dark. The time of weighing will depend on the ETA at Phnom Penh which must be adjusted so as to cross the 120-mile bar at low water. Beyond this bar vertical tidal effects are negligible, but it has been observed that the flood stream may still run at a rate of about 1 knot. The 182-mile bar is the most difficult of the passage as it is shallow, and the channel is only 45 m wide, passing very close to the bank.

5.112

Distances and depths in the Mekong River are measured from the entrance of the Sai Gon River. Some of the more important are as follows:

Mile 6	Baie des Cocotiers
Mile 26	Seaward end of entrance bar (2·1 m)
Mile 35	Inshore end of entrance bar
Mile 56	City of My Tho
Mile 70	Bar
Mile 78	Bar (3·4 m)
Mile 87	Car Ferry
Mile 120	Bar (5·5 m)
Mile 154	Cambodian frontier
Mile 182	Bar (4·0 m)
Mile 205	Bar (4·9 m)
Mile 209	City of Phnom Penh

5.113

Maximum draught permitted for vessels proceeding to Phnom Penh are:

Jan 1–15	4·4 m	July 16–31	4·7 m
Jan 16–Feb 15	4·3 m	Aug 1–15	4·8 m
Feb 16–May 15	4·2 m	Aug 16–31	5·0 m
May 16–31	4·3 m	Sep 1–Oct 30	5·2 m
June 1–15	4·4 m	Nov 1–15	5·0 m
June 16–30	4·5 m	Nov 16–30	4·8 m
July 1–15	4·6 m	Dec	4·6 m

These draughts may be varied and are subject to regular dredging at Phnom Penh.

The passage from sea to Phnom Penh is not as difficult as it may appear; the river is wide and there are few sharp turns. The bottom is, in general, soft mud and no damage should result if a vessel grounds. There are many fishing stakes, but these are well lit at night; the end stake is normally marked by a red light. Fishing nets are also laid across the river, but it is possible to pass over these without damaging them.

River ports

5.114

My Tho, the largest city on the Mekong Delta S of Ho Chi Minh City, is situated 30 miles above the seaward end of the bar Cua Tieu. Berthing, suitable only for lighters, consists of a pier and two wharves. Vessels anchor in mid-stream.

Facilities. There are some floating sheers and a small floating dock. There is a hospital.

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Supplies. Fresh water and fuel are available to river craft. Provisions are not available.

A ferry crosses the river at My Tho.

Chart 3986

A T-shaped pier, having a frontage of 41 m and a depth alongside of 9·1 m, is situated 4½ miles NW of My Tho on the S bank of the river.

5.115

Vinh Long is situated 23 miles above My Tho. There are three wharves. Water and a few provisions may be obtained.

5.116

Sa Dec (10° 18′ N, 105° 46′ E) is situated 12 miles above Vinh Long.

Chart 2660a

5.117

Phnom Penh (11° 36′ N, 104° 54′ E), which in 1974 had a population of 1 800 000, is the capital and seat of Government of Cambodia, see 1.51. The port is strategically located in a vast network of waterways, and is important for its river traffic between Ho Chi Minh City and the interior. Phnom Penh has not been developed in recent years and most ocean-going traffic has been diverted to Kampong Saom (5.22).

There is a pier, 183 m in length, and three pontoon wharves, each 40 m in length to which additional pontoons 20 m long can be added to permit ships 100 m in length to berth alongside. There are other berths for small craft. Vessels also discharge cargo at anchorage off the town into lighters or junks.

Facilities. There are several cranes of capacity up to 15 tons, but vessels usually use their own derricks.

Two small tugs are available.

Small repairs can be carried out.

Deratting can be carried out: see 1.92.

There are several hospitals.

Supplies. Fresh water is laid on to the pier and wharves. Provisions and stores are limited.

Diesel fuel and fuel oil are available from barges.

Communications. There is regular communication by sea with Singapore and Hong Kong and by river with the principal towns in the interior. There is a good road and railway to Kampong Saom, and a road connects with Ho Chi Minh City.

Phnom Penh Airport, situated at **Pouchentong** 3 miles W of the city, conducts inter-continental and local traffic.

DELTA OF SONG SAI GON

Chart 1016

5.118

The delta of **Song Sai Gon** lies in a bay which is entered between Pointe du Mirador (10° 16′ N, 106° 45′ E) (5.108) and Mui Vung Tau, 20 miles ENE. The delta is formed by numerous islands separated by rivers or canals which are connected with one another. Cua Soirap (5.120) and Song Dong Tranh, close E, are situated in the NW part of the bay, and Vinh Ganh Rai is situated in the NE part between Mui Ganh Rai, 4¼ miles NNW of Mui Vung Tau, and Mui Can Gio (5.126), a point 5 miles WNW.

Two rivers which can be used by ocean-going vessels lead through the delta to Song Sai Gon. The W river, Song Nha Be, is entered from Vinh Ganh Rai via Cua Soirap, and the E river, Song Long Tao, which provides the main channel to Song Sai Gon is entered close N of Mui Can Gio, 8 miles NW of Mui Vung Tau. These two rivers join together at Pointe Phami (10° 40′ N, 106° 47′ E) about 10 miles below Ho Chi Minh City.

Charts 1261, 3986, 2660a

Song Dong Nai joins Song Sai Gon 5 miles above Pointe Phami; it irrigates all the N part of the province of **Bien Hoa** and passes the town of that name 11 miles NNE of Ho Chi Minh City. This river is only navigable for a distance of 15 miles to a position 6 miles below Bien Hoa. See also 5.147.

Song Sai Gon pursues a winding course through Ho Chi Minh City, situated about 10 miles above Pointe Phami to its source somewhere near **Nui Ba Dinh,** 965 m (3166 ft) high, situated 80 miles NW of Mui Vung Tau.

Chart 1016

5.119

Pilotage in Song Sai Gong is compulsory. The pilot station is at Baie des Cocotiers (5.130) which is connected by telephone to the signal station on Nui Vung Tau (5.125). Pilots embark 1 mile W of Baie des Cocotiers.

A vessel requiring pilotage should report on arrival at Vung Tau giving draught, speed which can be maintained in the river and position in which the vessel is anchored.

WEST PART OF DELTA OF SONG SAI GON

5.120

Cua Soirap is entered between **Doi Ba Cai,** a point on the mainland 8½ miles N of Pointe du Mirador, and a point 1¾ miles E. The channel leading to the entrance, 1¼ miles wide, lies between the bank extending NE from Banc Norodom (5.108) and the bank which extends 12 miles SE from the E entrance point of the river. **Banc du Soirap,** with a least depth of 1·2 m (4 ft) over it, lies at the extremity of the latter bank, 9 miles WSW of Mui Vung Tau.

5.121

Cua Soirap No 1 Light-buoy (10° 13′ N, 106° 57′ E) (5.108) also marks the entrance to the approach channel to Cua Soirap. S2 Light-buoy (red; light flashing white every 4 seconds; radar reflector) is moored 4 miles NNW of Cua Soirap No 1 Light-buoy. Beyond this point the river is marked by light-buoys and buoys which are moved to conform with changes in the channel.

The dangerous wreck, 2¼ miles ESE of Cua Soirap No 1 Light-buoy is described in 5.108.

The bar across Cua Soirap is covered with fishing stakes and vessels should not enter the river by this route without local knowledge. In 1950, a vessel with a draught of 4·0 m could enter Cua Soirap at all states of the tide.

5.122

Tidal streams in the entrance to Cua Soirap, 4 miles S of Mui Dong Tranh (10° 22′ N, 106° 53′ E) set NW on the rising tide and SE on the falling tide. The flows

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change direction 1 hour after local high and low water; the turns are clockwise and very abrupt. The flow attains their greatest rates on both rising and falling tides a little after half tide; for a 3 m range of the tide the rates are 2 knots for the in-going and 3 knots for the out-going flow.

5.123

The mouth of **Song Vam Co** is situated on the W side of Cua Soirap 6 miles NW of Doi Ba Cai (5.120). **Song Rach Cac (Rach Can Gioc)** is entered close N of Song Vam Co, on the same side of the river; drying banks extend 4 cables from both entrance points of Song Rach Cac.

Abreast the entrance to Song Rach Cac, there is a second bar with a depth of 4·6 m (15 ft) over it. There are rocks and fishing stakes on this bar, but above it as far as Pointe du Lazaret (5.144) (10° 40′ N, 106° 46′ E) at the junction with Song Long Tao, the depths are greater. A ledge, with depths of 0·6 m (2 ft) over it, extends 3 cables from the N bank of the river for 1½ miles W of Pointe du Lazaret.

5.124

Song Dong Tranh is entered between Mui Dong Tranh, on which stands the ruins of a light-tower, situated 10 miles NE of Pointe du Mirador (5.108), and the E side of the coastal bank extending from the E entrance point of Cua Soirap. A bar, with depths from 2·1 to 3·7 m (7 to 12 ft) over it, fronts the entrance to Song Dong Tranh which is only suitable for vessels with local knowledge.

Tidal streams in Song Dong Tranh are strong and turbulent with large tides.

EAST PART OF DELTA OF SONG SAI GON

Charts 1016, 1015

5.125

Mui Vung Tau (10° 19′ N, 107° 05′ E) is the S extremity of an island on the W side of which are three steep hills, which are the first high land seen when approaching from SW, and appear as islands at a distance. **Nui Vung Tau,** 182 m (597 ft) high, the S of the three hills, lies 1 mile NNW of Mui Vung Tau; **Nui Hoa Sup,** 243 m (797 ft) high, lies 1½ miles NNW of Nui Vung Tau, and **Nui Vung May (Mai),** 234 m (767 ft) high, 1 mile farther NNW.

Nui Vung Tau Lighthouse is a white masonry tower, 18 m in height, situated on the summit of the hill. There is a signal station near the lighthouse.

A conspicuous monument, the charted position of which is approximate, stands on high ground 4 cables N of Mui Vung Tau.

5.126

The E mouth of Song Sai Gon is approached between Mui Vung Tau and the shallow banks, 3 miles W, which extend 7 miles SE from **Mui Can Gio** (10° 25′ N, 106° 59′ E). This point is low, covered with brushwood, and not easily seen. There is a heliport on this point.

There are numerous fishing stakes on the banks on the W side of the channel.

Chart 1016

5.127

Îlot Archinad, 15 m (48 ft) high, lies 4 cables NE of Mui Vung Tau, on the outer edge of a reef extending 2 cables offshore, and another islet lies 1½ cables SW of Îlot Archinard close offshore. There is a rock, with a depth of 6·4 m (21 ft) over it, ¼ mile SE of Mui Vung Tau.

Chart 1261

Banc Formosa, with a depth of 2·4 m (8 ft) over it, lies 1 mile ESE of Mui Vung Tau; it extends 1¼ miles E where there is a rock with a depth of 1·5 m (5 ft) over it.

Banc du Requin, with a depth of 8·2 m (27 ft) over it at its W end, situated 3½ miles ESE of Mui Vung Tau, extends 3 miles E. The least depth on the bank, 5·8 m (19 ft), is situated towards its E end, 6 miles ESE from the point.

Charts 1016, 1261

Banc du Cap, with a least depth of 7·6 m (25 ft) over it, lies 2¼ miles SE of Mui Vung Tau. A detached 7·0 m (23 ft) patch lies 3 miles SE of the same point.

5.128

Tidal streams at Mui Vung Tau. The in-going stream begins very shortly after low water and the out-going shortly after high water.

The durations and rates of the tidal streams are greatly influenced by the rainy season (August and September) and the flood is often completely overcome, the ebb stream flowing continuously.

In the NE Monsoon a vessel may be set to leeward of Mui Vung Tau and towards Bancs de Can Gio (5.126) by the prevailing current accelerated by the flood stream. During the ebb stream, however, the current is at times overcome and there may be a NE set. During the rising tide the stream sets W over Banc Formosa (5.127); W of this bank it sets more N into Vinh Ganh Rai. On the falling tide it sets in a S direction out of the bay and E over Banc Formosa. Slack water occurs 1½ hours after high and low water at Mui Vung Tau and the stream attains a rate of 2 knots which is maintained for the middle two hours of the rising and falling tides.

Directions for approaching Mui Vung Tau. In the SW Monsoon, a vessel from the vicinity of Con Son (5.87) should steer to pass along the edge of the bank fronting the delta of Mekong River and extending to the mouth of Song Sai Gon. Strong freshets run out of the rivers during the NW Monsoon and join the NE current; allowance should therefore be made to prevent being set to leeward of Mui Vung Tau. Whilst passing along the edge of this bank, keep in depths of not less than 18 m (59 ft) until Mui Vung Tau bears less than 020° when course may be altered for the entrance.

Charts 1015, 1016

Approaches to Baie des Cocotiers

5.129

Caution. Wrecks and other obstructions are present in considerable numbers in the entrance W of Mui Vung

(5.125) N side of entrance to Song Sai Gon
(Original dated prior to 1959)

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Tau and throughout the channel up to Ho Chi Minh City, a number of which are marked and some likely to be unmarked. It is therefore essential that the recommended tracks be adhered to.

No 3 Light-buoy is moored near the W extremity of Banc Ranza which extends 1 mile WSW from **Pointe des Carrières,** 8 cables NW of Mui Vung Tau.

No 1 Light-buoy moored 1½ miles WSW of Mui Vung Tau marks an 11 m (36 ft) shoal.

No 7 Light-buoy is moored 5 cables W of the head of the mole at the S entrance point to Baie des Cocotiers.

On the W side of the approach to Baie des Cocotiers, there are several shoals, with depths of 5 m (16 ft) and less over them, which lie near the end of **Banc du Sud-ouest** (10° 20′ N, 107° 02′ E). The E shoal, with a depth of 8·5 m (28 ft) over it, is situated 1¾ miles SSW of Mui Vung Tau.

A depth of 7·9 m (26 ft), the charted position of which is approximate, lies 1¼ miles W of Mui Vung Tau.

In 1979 less water than charted was reported in the S approach to Baie des Cocotiers.

Baie des Cocotiers

5.130

Baie des Cocotiers, at the head of which is **Xa Vung Tau,** is entered 1½ miles NNW of Mui Vung Tau. A partially destroyed mole is situated off the S entrance point of the bay and extends for 3 cables in a WNW direction; it affords shelter for landing during the SW Monsoon but it covers at high water. A pilot station is situated in the bay.

Tidal streams in Baie des Cocotiers set NW on the rising tide and SSE on the falling tide; the changes are very abrupt and occur at local high and low water. The flow attains a maximum rate of 1½ knots on the rising tide 1½ hours before half tide, and a maximum rate of 2 knots on the falling tide at half tide.

Anchorages. Vessels can obtain anchorage anywhere off the coast of the high land NW of Mui Vung Tau (10° 19′ N, 107° 50′ E), in a depth of 13 m (43 ft), mud, about 1 mile offshore, care being taken to avoid foul ground and wrecks lying about 2½ miles NW of the point. There is often considerable swell during the SW Monsoon but the anchorage is excellent during the NE Monsoon.

Small vessels will find a convenient anchorage in the outer part of Baie des Cocotiers: during the SW Monsoon, a better anchorage will be found off the mouth of Song Dinh (5.132) but local knowledge is essential.

Vessels intending to anchor, and not requiring a pilot should display, by day, flag 'D' of the international code of signals and, by night, exhibit a red light.

Supplies. Provisions are plentiful at Xa Vung Tau.

Signals. There is a signal station near Nui Vung Tau Lighthouse (5.125) with which vessels can communicate by the International Code of Signals. Storm signals are displayed from the signal station.

There is a coast radio station and a port radio station at Mui Vung Tau.

Deratting exemption certificates can be issued: see 1.92.

Climatic table: see 1.131.

5.131

Mui Do Cao Trang (10° 21′ N, 107° 04′ E) lies midway between Mui Vung Tau and Mui Ganh Rai, 4¼ miles NNE.

Mui Do Cao Light-structure is a white square tower with black bands, 17 m in height, situated on the point.

A radar tower, from which a light is exhibited, stands on Nui Hoa Sup, 5 cables E of Mui Do Cao Trang.

Fausse Baie, the N of the two bays on this coast, is entered between Mui Do Cao Trang and **Pointe Vung,** 1 mile NNW.

Mui Ganh Rai is the NW extremity of the island of which Mui Vung Tau is the S extremity (5.125). **Ganh Rai Light-structure** is a white metal framework tower with black bands, situated on Pointe du Lazaret, 1¼ cables SW of Mui Ganh Rai.

Can Gio Aval Light-structure is a truncated tower on a dwelling on piles, 20 m in height, situated at the N end of **Bancs de Can Gio,** 2¾ miles WNW of Mui Ganh Rai.

5.132

Directions for approaching Vinh Ganh Rai and Song Sai Gon. Vessels usually approach with Mui Do Cao (5.131) bearing 353°; at night, however, the light is obscured on this bearing. When 1¾ miles SW of Mui Vung Tau, steer 325° and then follow the recommended track, passing SW of No 1 Light-buoy (5.129) and E of No 2 Light-buoy marking a wreck 1¼ miles WSW of Mui Ganh Rai.

Nos 6, 8 and 10 buoys moored respectively 3¾ miles, 2½ miles and 1¾ miles SSE of Can Gio Aval Light (5.131) mark the E side of the bank extending E and SE from Mui Can Gio (5.126).

Vinh Ganh Rai

5.133

Vinh Ganh Rai, into which Song Sai Gon and several smaller rivers discharge, is entered W of Mui Ganh Rai (10° 23′ N, 107° 04′ E). **Cu Lao Ben Dinh** lies ½ mile E of Mui Ganh Rai and is separated from the land to S by **Rach Ben Dinh.**

Chart 1016

5.134

Song Dinh is entered in an ESE direction through a dredged and buoyed channel between the N extremity of Cu Lao Ben Dinh and the S extremity of **Cu Lao Tao** (10° 24′ N, 107° 06′ E). The bar of Song Dinh is ¾ mile wide with a least depth of 2·1 m (7 ft) over it. In 1967 the approach channel over the bar was dredged to 9·1 m (30 ft).

No 1 Light-buoy (black and white chequers; light white quick flashing; radar reflector) is moored at the W end of the dredged channel across the bar, 1 mile NNW of Mui Ganh Rai; farther E the channel is marked by light-buoys, odd-numbered buoys are painted black and even numbered red.

Leading lights, ½ mile apart, are situated on the N bank of Song Dinh, 2 miles ENE of Mui Ganh Rai. These lights, in line bearing 096°, lead into the entrance of Song Dinh from the bar.

Xa Thang Nhut, where there is a hard, is situated on the S bank of Song Dinh, 3 cables ESE of the S extremity of Cu Lao Tao.

A trot of mooring buoys, 225 m apart, and providing three berths for ships up to 8 m in draught, are situated 1½ cables above the hard at Xa Thang Nhut.

A buoy (white can; radar reflector) is moored in Song Dinh, 1¼ miles NNE of Xa Thang Nhut, and a red obstruction light is exhibited from a radio tower 3 miles ENE of that village.

Tidal streams in Song Dinh turn 1 hour after high water locally and 1½ hours after low water locally.

5.135

Song Cha Va is entered over a bar, with a depth of 4·0 m (13 ft), lying 2 miles W of the NW extremity of Cu

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Lao Tao (10° 24′ N, 107° 06′ E); the channel then leads ENE to a position ¼ mile N of Cu Lao Tao.

Anchorage may be obtained by small vessels with local knowledge during the NE Monsoon off the mouths of Song Dinh and Song Cha Ya.

Fishing stakes will be found on the bars of both these rivers.

Rach Ong Ben enters Vinh Ganh Rai 5 miles NW of Cu Lao Tao.

Song Cai Mep is entered between **Cu Lao Phu Long** (10° 29′ N, 107° 01′ E) and the SE extremity of **Cu Lao Phu Loi,** 3 miles SW.

5.136

The main entrance of Song Sai Gon lies between the S extremity of Cu Lao Phu Loi and Mui Can Gio (5.126) (10° 25′ N, 106° 58′ E), 2 miles SSE. A drying bank extends 3 cables NE from Mui Can Gio. There are several shallow patches on the bar of the river which is 2 miles wide and lies NE of Mui Can Gio, and between the latter and the shoals extending SE from Cu Lao Phu Loi. The shallowest of these patches has a depth of 5·5 m (18 ft) over it, and lies 1 mile NNE of Mui Can Gio. The least depth on the recommended track is 6·4 m (21 ft), 1½ miles E of the same point.

Anchorage may be obtained anywhere in the approach channel to Song Sai Gon. The best anchorage during the SW Monsoon is N of Mui Can Gio (5.126) in depths of 12 to 13 m (39 to 42 ft).

MAIN CHANNEL TO HO CHI MINH CITY

5.137

Pilotage for Song Sai Gon is compulsory and is conducted in daylight only. Vessels should arrive at Baie des Cocotiers 2 hours before daylight high water. In 1987 a report was received that pilotage was also undertaken at night.

Directions and information for Song Sai Gon. Vessels of up to 210 m in length can proceed to Ho Chi Minh City and the maximum draught allowed is 9·3 m (30 ft) depending on the height of HW on the day. At least 0·3 m (1 ft) under keel clearance must be allowed. The least charted depth in the channel, at the seaward end of Banc de Corail (5.141), is 6·2 m (20 ft). Vessels arriving on the same tide can only follow one another at intervals of ¾ hour.

For vessels with a speed of 13 knots and draught not exceeding 6·7 m (22 ft), it is advisable to arrive off Mui Vung Tau at the commencement of the flood stream which occurs 1 hour after low water there; the vessel should then arrive off Ho Chi Minh City at the beginning of the flood which is the best time for berthing. Deep-draught vessels should adjust their ETA so as to pass Banc de Corail (5.141) at the time of high water locally which occurs 50 to 80 minutes after high water at Mui Vung Tung. At Banc de Corail the water is fresh.

Though the beginning and end of the flood are the best times for berthing, pilots will berth vessels at all states of the flood tide. If proceeding to sea, the best time for a deep-draught vessel to leave Ho Chi Minh City is two hours before high water; this ensures that she should pass Banc de Corail near the time of high water.

In 1979 it was reported that silting had occurred throughout the river and that some of the navigational aids had been changed.

Tidal streams in the entrance to Song Sai Gon. At a position 1¾ miles N of Can Gio Aval Light-structure (5.131), the streams set NW on the rising tide and SSE on the following tide; when changing from out-going to in-going the turn is anti-clockwise.

In a position 2¾ miles NW of the same light-structure, the flow sets W on the rising tide and E on the falling tide.

5.138

Within the bar, the bottom consists mainly of soft mud, but there are some patches of sand and coral.

Prohibited anchorage. Anchorage is prohibited, except in an emergency, within a distance of 1 mile either side of the sharp bends of the river.

On the SW side of the river between Mui Can Gio and the mouth of **Song Dong Dinh,** 2½ miles WNW, the edge of the bank is steep-to.

ON the NE side of the river, **Rach Tchen,** 3 cables wide, flows into Song Sai Gon between Cu Lao Phu Loi and the SW extremity of **Thanh An,** an island. **Mui Nuoc Van,** the SW extremity of Thanh An, lies 4 miles NW of Mui Can Gio.

Feux de Bai-Yen No 8 Leading Lights are situated on the N side of the entrance to **Song Ca Gau,** 4½ miles NNW of Mui Can Gio. The rear light is exhibited from a white metal framework tower with red bands, 12 m in height and the front light from a similar structure, 10 m in height, situated 75 m SSE of the rear light. These lights in line bear 335°.

5.139

Song Dong Tranh and **Song Dua** enter the N side of Song Sai Gon, 4 miles N of Mui Nuoc Van. The reach where these streams enter is known as **Les Quatre Bras.** **Song Dan Xay** enters Song Sai Gon on its S side, 2½ miles W of Song Dua, and connects with Song Dong Tranh (5.124).

Pointe An Thanh lies on the E side of Song Sai Gon 3½ miles WNW of the entrance to Song Dua. No 15 Beacon, red and white, stands on Pointe An Thanh.

5.140

Pointe de l'Est (10° 34′·8 N, 106° 50′·4 E) lies on the SE side of a bend 2 miles NNW of **Pointe du Kervella,** which is ½ mile NW of Pointe An Thanh; a spit with a depth of 4·6 m (15 ft) over its outer end, extends 1 cable W from Pointe de l'Est.

A lattice mast, red and white with a cylindrical topmark, stands on the S side of the entrance to **Tac Ong Nghia** opposite Pointe de l'Est.

No 12 Beacon, red white red, stands on **Coude de l'Est** on the N side of the entrance to Tac Ong Nghia and No 14 Beacon, red and white, stands about 3 cables NE of No 12 Beacon.

Haut de l'Est, a point on the NW side of a bend, lies 1¼ miles E of Pointe de l'Est. **Banc du Propontis,** consisting of sand, extends from the E side of Song Sai Gon from abreast Haut de l'Est to the S entrance point of **Rach Tac Roi,** 6 cables N.

No 17 Beacon, red and brown, stands on the S entrance point of Rach Tac Roi.

Tidal streams in **Rach Tac Din Cau,** which leads SE from Rach Tac Roi to Song Dua and is used by small craft, attain a rate of 5 knots.

Pointe du Lombard (10° 36′ N, 106° 57′ E) lies on the W side of Song Sai Gon, 4 cables N of the mouth of Rach Tac Roi. **Banc du Lombard,** with a least depth of 3·4 m (11 ft) over it, extends ½ cable E from the point. Violent cross streams and undertows are experienced off Pointe du Lombard.

Chart 1015

5.141

Banc de Corail (10° 37′ N, 106° 52′ E) is situated 1¼ miles N of Pointe du Lombard. The bank consists of

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hard red rock under 0·9 m (3 ft) of mud, through which a channel, ¼ cable wide, has been dredged. The least depth in this channel is 6·0 m (19½ ft) near its S end; it forms the shallowest part of Song Sai Gon between Ho Chi Minh City and the sea.

The channel is marked by leading beacons bearing, in line, about 340° ahead and 119° astern.

Prohibited anchorage. Anchorage is prohibited near or in the dredged channel through Banc de Corail.

Chart 1016

5.142

Pointe Mongom, the E entrance point of the N mouth of Song Dong Tranh (5.139), lies 2¼ miles NW of Pointe du Lombard.

Pointe du Valéro is situated on the S side of the river, ¼ mile SSW of Pointe Mongom. No 16 Beacon (red, white, red) stands on Pointe du Valéro.

Pointe O Ro lies on the SW side of the river 2½ miles NW of Pointe du Valéro. There is a coral patch, with a depth of 8·2 m (27 ft) over it, near the middle of the river 1½ cables N of Pointe O Ro. No 18 Beacon (red, white, red) stands at the entrance to **Rach Nha,** 1½ miles NW of Pointe O Ro.

Charts 1015, 1016

Nha Bé

5.143

Song Nha Bé is the reach of the river between **Pointe Phami** (10° 40′ N, 106° 46′ E), situated 2 miles NW of Pointe O Ro and Mui Den Do (5.146) 4½ miles N.

A spit, with a depth of 4·9 m (16 ft) over its outer extremity, extends 2¾ cables NW from Pointe Phami: its outer end is marked by a buoy (conical; orange).

Pointe du Phuoc Khanh lies on the NE side of the river ¼ mile N of Pointe Phami. No 21 Beacon (black, white, black) stands on Pointe du Phuoc Khanh.

Prohibited anchorage. Anchorage is prohibited in an area NW of Pointe Phami.

5.144

Song Soirap (5.123) is entered on the S side of the river between Pointe Phami and **Pointe du Lazaret,** ½ mile W. **Banc du Sud,** with a depth of 6·4 m (21 ft) over it, lies 2½ cables NNE of Pointe du Lazaret, and a shoal, with a depth of 6·7 m (22 ft) over it, lies on the recommended track 7 cables N of the same point.

A **light** is exhibited from a metal framework tower, 12 m in height, situated 3 cables N of Pointe du Lazaret.

A wreck, with a depth of 3·4 m (11 ft) over it, lies 8 cables N of this light-structure; it is marked by a buoy (black can) moored 1¼ cables NW of it. N of this buoy, the coastal bank with a depth of 5·5 m (18 ft) over its outer extremity, extends 2½ cables from the NE side of the river.

5.145

Nha Bé is the petroleum port of Ho Chi Minh City, and is situated S of **Rach Doi,** on the W side of the river 2¼ miles NNW of Pointe Phami. There are a large number of oil tanks which are prominent.

A custom house is situated on the N side of the entrance to Rach Doi.

A **light** is exhibited from a white metal framework tower with a red lantern near the custom house.

Berthing. Three jetties are available with depths of 8·2 m (27 ft), 9·4 m (31 ft), and 9·1 m (30 ft). Vessels secure alongside with mooring buoys at each end.

Most vessels proceeding to Nha Bé cross Banc de Corail at high water, turn opposite the jetty on the flood tide and berth starboard side to. Vessels crossing Banc de Corail later than 1 hour after high water have to berth on the ebb tide.

Supplies. Diesel and all types of fuel are available. Fresh water can be obtained in limited quantities.

5.146

Rach Mieu, the entrance to which is on the E side of the river 1 mile SE of Rach Doi Light-structure, has a drying bank at the entrance. **Banc de la Ville de Paris,** composed of sand and rock, extends 3½ cables from the E shore between Rach Mieu and **Rach Ban Nho (Rach Bay Lon),** 1 mile N; it is marked by a buoy (black can).

A bank extends from the E side of the river, as far as the middle, from the N end of Banc de la Ville de Paris to abreast **Mui Den Do** (10° 44′ N, 106° 46′ E).

A **light** is exhibited from a white metal framework tower with a red lantern, 9 m height, situated on Mui Den Do.

Chart 1016

5.147

Song Dong Nai (5.118) joins Song Sai Gon E of Mui Den Do.

Banc du Caobang extends 7 cables SSE from the N side of the junction of Song Sai Gon and Song Dong Nai.

A spit, with a depth of 4·3 m (14 ft) over it, extends from the S bank of Song Dong Nai, 2¼ miles ENE of Mui Den Do; the outer end of the spit is marked by No 3 Buoy (black can).

A spit, with a depth of 4·6 m (15 ft) over it, extends from the N bank of Song Dong Nai, 2¾ miles ENE of Mui Den Do. A **beacon** marks a drying spit which extends from a point on the S bank 3 miles ENE of Mui Den Do.

Song Dong Nai is divided at this point by Cu Lao Ong Con. The navigable channel, with a least depth of 5·9 m (19 ft), leads S and E of the island as far as the mouth of Song Tac (10° 46′ N, 106° 50′ E), 1 mile above the point where the two branches of the river join. The river is navigable for a further 8 miles to a position 6 miles below the town of Bien Hoa (chart 3986).

Approaches to Ho Chi Minh City

5.148

A **beacon** stands on the W side of the mouth of **Rach Ba Buom,** situated 8½ cables W of Mui Den Do and on the S side of Song Sai Gon.

Pointe du Rach Bao lies on the N side, 8 cables W of Mui Den Do. **Banc du Chargeur,** with a depth of 2·7 m (9 ft) over its outer edge, extends ½ cable from the SW side of Pointe du Rach Bao. **Banc du Gange,** with a depth of 5·5 m (18 ft) over its E edge, extends from the W bank nearly halfway across the river, just above Banc du Chargeur.

Charts 1015, 1016

An **overhead cable,** with an estimated vertical clearance of 40 m (131 ft), spans the river 3 cables E of the mouth of **Kinh Te,** situated on the S side of Song Sai Gon, 4 miles by river above Pointe du Rach Bao. It has a least depth of 3·0 m (10 ft) and is the S limit of the port of Ho Chi Minh City.

HO CHI MINH CITY

Chart 1015

5.149

Ho Chi Minh City (Sai Gon) (10° 47′ N, 106° 42′ E) is the capital of the S part of Vietnam: it is situated

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mainly on the W bank of Song Sai Gon. The business part of the city is the S portion, known as the Port de Commerce; to the N are the dockyard and barracks, and W is the industrial quarter.

The harbour offices, custom house and flagstaff are situated on the N side of the entrance to Rach Ben Nghe (5.150), 1 mile above Kinh Te; two ferries cross the river 2 and 3 cables N of this position.

The population of Ho Chi Minh City, including **Cho Lon** and its main suburb **Gia Dinh,** was 3 000 000 in 1974.

Harbour limits. The limits of the port of Ho Chi Minh City are between the mouth of Kinh Te and that of Rach Cao Bong (5.150). **Port de Commerce** consists of that portion S of a line drawn across the river from a position 3½ cables N of the entrance to Rach Ben Nghe. N of this line is the **Port de Guerre.**

5.150

Depths. The least depth in Port de Commerce is 8·2 m (27 ft) on **Banc du Canton,** in the middle of the river off the mouth of Rach Ben Nghe. With this exception, the depths in the fairway are 9·8 m (32 ft) or more. In Port de Guerre there are obstructions in the middle of the river, 3½ cables SW of the entrance to **Rach Cao Bong,** and 2 cables S of the entrance to the graving dock.

Rach Ben Nghe, which connects Ho Chi Minh City with Cho Lon close SW, has a least depth of 0·9 m (3 ft) and is crossed by three bridges.

5.151

Berthing. There are several wharves, one of which, **Quai Khan-Hoi** (10° 45′·5 N, 106° 43′ E), situated on the SW side of the river close above the mouth of Kinh Te, is 1250 m long with eleven berths and depths from 7·9 m to 11·0 m (26 to 36 ft) alongside. Vessels lying alongside this wharf, in certain positions, with a falling tide are liable to foul projections. There is a conspicuous water tower situated near this quay. **Quai de Messageries Maritime,** 430 m long, with three berths is situated farther up stream.

Vessels are, as a rule, moored head and stern between mooring buoys, bows down river, or alongside the wharves. There are four mooring buoy berths on the right side of the river and eleven on the left, and several berths alongside T-headed jetties below the SE limit of the harbour.

In Port de Guerre there are several mooring buoys in depths of 9 to 13 m (30 to 43 ft).

In 1979 silting was reported at the berths in Ho Chi Minh City.

Anchorage is prohibited in the river except below the mooring buoy berths and out of the fairway at a considerable distance from the city.

All vessels are berthed under the direction of the Captain of the Port.

Turning. Vessels are only permitted to turn round in two areas, one of which is near the mouth of Rach Ben Nghe and the other above Port de Guerre.

Vessels berthing in Port de Commerce usually turn on their starboard anchor off Rach Ben Nghe with the assistance of the flood stream and then steer down river to berth head down stream; deep-draught vessels should arrive off Rach Ben Nghe with the very last of the flood stream to avoid turning too quickly, thus risking parting their cable.

Vessels proceeding to Port de Guerre are swung round by grounding their stems on the river bank and allowing the tidal stream to swing them. Pylons indicate the positions on the E bank of Song Sai Gon where vessels can place their bows against the bank with safety.

5.152

Tidal streams at Ho Chi Minh City. The flood stream begins 4¾ hours after low water at Mui Vung Tau, and the ebb stream 4¼ hours after high water at Mui Vung Tau. The duration of slack is about 20 minutes. The floodstream attains its maximum rate quickly and the ebb stream slowly. The stream on the E bank turns 20 minutes before the stream in mid river.

The rate of flow varies between 1 and 3½ knots and the local pilots work on a rate of flow of 1 knot for every 1·0 m (3·3 ft) of range. According to them, if the range of the flood tide is less than 1·0 m (3 ft) there is no flood stream for that flood tide.

5.153

Facilities. Machine shop repairs only can be undertaken. There is a Government dry dock, which merchant vessels are permitted to use. See 1.88.

Ample facilities are available for handling cargo. There are three floating cranes of 35, 50 and 100 tons capacity. Tugs of up to 2600 hp are available.

There are several hospitals.

Deratting can be carried out: see 1.92.

Supplies. Fresh water is laid on at Quai Khan-Hoi, elsewhere the supply is by lighter.

Provisions are available.

Diesel fuel can be supplied with advance notice.

Communications. There is regular communication by sea with Europe, Singapore, Manila, Hong Kong and all the principal ports of the areas. Ho Chi Minh City is connected by rail to Hanoi, Langson and My Tho (5.114).Tan Son Nhut Airport, 3 miles N of Ho Chi Minh City, operates services to USA, Europe and other parts of the world.

There is a coast radio station and a port radio station at Ho Chi Minh City.

Storm signals are displayed at Ho Chi Minh City (10° 47′ N, 106° 42′ E). See 1.31.

Regulations. Vessels which do not have a clean bill of health, and those carrying explosives must anchor at Nha Bé.

No vessels, except mail vessels are, as a general rule, permitted to shift berth at night between the hours of 1800 and 0600.

Permission to proceed to sea must be obtained from the Harbour Authority 6 hours in advance and in daylight hours.

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CHAPTER 6

COAST OF VIETNAM—MUI VUNG TAU TO MUI LAY

Charts 2660a, 2661a

6.1

The coast of central Vietnam is for the most part mountainous, and consists of a succession of jagged cliffs and wind-swept sand-hills. Numerous banks of sand or rock fringe the coast. To the N of Mui Dinh (6.27) there are many bays and secure anchorages.

6.2

Tidal streams and currents. Off the coast the tidal streams are weak and the water flow is governed by the current. Such observations as are available, suggest a N-going stream about high water and a S-going stream around low water. Tidal streams near large inlets or river mouths, flowing inwards on the rising tide and outwards on the falling tide, are apparent.

The currents off the coast of central Vietnam attain their greatest rates at a distance of 3 miles offshore. Occasionally there is an eddy current in both monsoons within this distance of the coast.

MUI VUNG TAU TO MUI DINH

Charts 3986, 3987, 2660a

6.3

Currents. From Mui Vung Tau to Mui Dinh (6.27), 130 miles ENE, the currents in both monsoons are weak and rarely exceed a rate of 1 knot.

Chart 1261

Mui Vung Tau to Mui Ba Kiem

6.4

Between Mui Vung Tau (10° 19′ N, 107° 05′ E) (5.121) and Mui Ky Van, 11 miles ENE, there is a shallow bay, the shores of which are low and backed by sand-hills.

6.5

Submarine cables. Three submarine cables land 1 mile ENE of Mui Vung Tau.

6.6

Cua Lap, which is entered at the head of the shallow bay, 7 miles NE of Mui Vung Tau, has a depth of 0·6 m (2 ft) in the channel across the bar. **Ap Cua Lap** stands on the W side of the entrance, and **Phuoc Tinh** on the E side. Vinh Ganh Rai (5.133) can be reached by boats through Cua Lap.

6.7

Mui Ky Van (10° 23′ N, 107° 16′ E) rises to several peaks, the highest of which, **Nui Chau Vien,** situated 2 miles N of the point, has an elevation of 326 m (1079 ft). When approaching this coast, these peaks are usually seen before Mui Vung Tau. **Mui Com Thieu** is situated 1 mile W of Mui Ky Van.

Tidal streams at a position 1½ miles offshore E of Mui Ky Van have a maximum rate of 1 knot for a tidal range of 2·0 m, setting 230° on the rising tide and 040° on the falling tide.

Roche Pernambuco, with a depth of 5·2 m (17 ft) over it, lies 2 miles SE of Mui Ky Van. The depths are irregular in this vicinity and shallow patches lie near it.

An 11·0 m (36 ft) patch, charted as an obstruction, lies 8½ miles ESE of Mui Ky Van. Vessels are recommended to keep in depths of more than 80 m (60 ft) when passing this point.

6.8

A conspicuous red building stands near the shore 2 miles NE of Mui Ky Van. **Phuoc Hai (Cho Phuoc Hai),** where there is a custom house, is situated 3½ miles NE of the same point. **Song Rai (Rach Song Cai)** discharges 2¾ miles NE of Phuoc Hai. The village of **Loc An** stands on the W bank of Song Rai, ¾ mile within the entrance. **Ap Thuan Bien** is situated close W of **Mui Ho Tram,** 12 miles ENE of Mui Ky Van.

6.9

Ba Ké shoals, a number of isolated patches with depths from 4·3 to 9·1 m (14 to 30 ft) over them, lie within 7 miles SSE of Mui Ho Tram (10° 28′ N, 107° 27′ E). These dangers cause **overfalls,** particularly near the edge of the coastal bank, where the depths are irregular; in depths of 18 to 22 m (10 to 12 fm), the bottom is generally soft mud and the depths are regular.

Roche Rosslyn (Rosslyn Rock), with a depth of 0·6 m (2 ft) over it, lies 6¼ miles SSE of Mui Ba Kiem (10° 30′ N, 107° 30′ E).

In hazy weather when passing these dangers vessels should keep in depths of 22 m (12 fm) or more.

Mui Ba Kiem to Mui Ké Ga

6.10

Mui Ba Kiem, 119 m high, lies 4½ miles ENE of Mui Ho Tram and is close to the boundary between the central and S parts of Vietnam. A chain of yellowish-white sand-hills, from 35 to 45 m high, extends along this stretch of coast a short distance inland from 1 to 3 miles NE of Mui Ho Tram. See view 4.

Mined area. An area, dangerous due to mines, is centred 24 miles SE of Mui Ba Kiem. See 1.5 and Appendix I.

Tidal streams, between the monsoons, in a position 1 mile SE of Mui Ba Kiem are as follows:

Interval from Local HW	*Remarks*
−0400	Weak stream setting WSW on the rising tide.
−0100	Stream setting WSW at ¾ knot and decreasing quickly.
+0100	Stream begins setting NE on the falling tide.
+0500	Stream setting NE at 1¼ knots.

Between Mui Ba Kiem and Mui Ké Ga, 30 miles ENE, the tidal streams, inshore, follow the coastline. On the rising tide the stream sets WSW attaining a maximum rate 2 hours before local high water and changes to a NE direction soon after local high water.

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6.11

Between Mui Ba Kiem and **La Gi (Lagi),** a village situated at the mouth of **Song Dinh,** 18 miles NE, the coast is low and wooded.

Britto Bank (10° 30′ N, 107° 49′ E), on which there is a rock with a depth of less than 2 m (6 ft) over it, lies near the outer edge of the 20 m (11 fm) line 10 miles SSE of La Gi.

Tidal streams near Britto Bank set E on the falling tide, attaining a maximum rate of 2 knots 5 hours after high water locally; the rate is minimum at high water locally.

Passage is not recommended between Britto Bank and the mainland coast NW, without local knowledge, and in thick weather it is recommended to keep in depths of more than 30 m (16 fm).

6.12

Hon Ba, 39 m (127 ft) high and wooded at its summit, lies 1½ miles E of La Gi.

Pointe Deu lies 5 miles NE of La Gi. **Tam Tan** village stands near the mouth of **Song Phan,** situated 1½ miles ENE of Pointe Deu; NW of Tam Tan there is a range of low hills. **Pointe Nui Nhum** lies 7 miles E of Pointe Deu and is separated from Mui Ké Ga, 1¾ miles E, by a shallow bay.

Charts 1261, 3986, 3987

6.13

Mui Ké Ga (10° 42′ N, 107° 59′ E) is the extremity of a tongue of low land, the prolongation of a spur from Nui Takou, see below. **Ilot Ké Ga** lies close S of the point.

Mui Ké Ga Lighthouse is an octagonal granite tower, 41 m in height, situated on Ilot Ké Ga.

Tidal streams in a position 6 miles SSE of Mui Ké Ga, with a large tide set SW on the rising tide attaining a rate of ¾ knot, and E on the falling tide attaining a rate of 1½ knots.

Anchorage may be obtained in a depth of 13 m (43 ft) sand, during the SW Monsoon with Mui Ké Ga Lighthouse bearing 208°, distant 7 cables.

Mined area. A dangerous area due to mines exists between 1½ and 11½ miles S of Mui Ké Ga. See 1.5 and Appendix I.

6.14

Inland, W of Mui Ké Ga, the country is mountainous. **Nui Takou (Nui Ta Kou),** 693 m (2273 ft) high, lies 9 miles NW of Mui Ké Ga and is the most prominent of these mountains, standing detached from any other high land.

Charts 3986, 3987

Outlying islands and banks

6.15

Dao Phu Qui (Poulo Cecir de Mer) (10° 32′ N, 108° 57′ E), the islands and dangers S of it, Holland Bank and Marne Bank which lie a considerable distance from the coast are described in 2.90.

Madge Bank, of sand and coral, and having a least depth of 12·8 m (42 ft) over it, lies 19 miles E of Mui Ké Ga.

Rivier Bank, with a depth of 12·8 m (42 ft), coral, over it, lies 32 miles E of Mui Ké Ga.

Torcy Bank, with a least depth of 14 m (46 ft) over it, lies 12 miles NE of Rivier Bank (10° 43′ N, 108° 38′ E).

6.16

Directions. The following route, coastwise from Song Sai Gon NE, was used by HMS *Warrior* in September 1954 on several occasions.

From a position 19 miles S of Mui Ba Kiem (6.10), steer 055° to a position 5 miles N of Madge Bank, thence steer 080° between Rivier Bank and Torcy Bank until about the meridian of 108° 50′ E, when course may be altered to the NE clear of the banks and dangerous wrecks extending SSE from Pointe Lagan.

Mui Ké Ga to Pointe Lagan

6.17

Vinh Phan Thiet is entered between Mui Ké Ga and Mui Ne (Pointe Vinay), 22 miles NE. Depths in the bay are irregular.

Fishing nets may be encountered up to a distance of 10 miles offshore abreast Vinh Phan Thiet and Mui Ne.

Tidal streams between Mui Ké Ga and Pointe Lagan are very weak.

6.18

The town of **Phan Thiet,** an important fishing centre with a population of about 10 000, is situated midway between the entrance points of the bay, at the mouth of **Song Cai (Song Ca Ti).** It is fronted by a drying bank, over which the sea nearly always breaks, leaving only a narrow channel.

Phan Thiet Light-structure is a metal framework tower, 7 m in height, standing on the E side of the entrance to Song Cai near the custom house.

No 1, 2 and 3 Buoys lie 2 miles SSW of the light-structure and a mooring buoy has been reported to lie 2½ miles SSE of it.

A tower, marked by an air obstruction light, stands 2¼ miles W of the light-structure, and there is a water tower with a red roof on the N side of Song Cai 1 mile NNW of the light-structure.

Anchorage may be obtained off Phan Thiet with the light-structure bearing 314°, distant 2 miles, in a depth of 8 m (26 ft), mud. Landing can be effected on a small beach W of the custom house.

Supplies at Phan Thiet are plentiful.

Communications. Phan Thiet is connected by rail with Ho Chi Minh City and Da Nang (6.168). There is a small airfield 2 miles SW of the town.

6.19

Mui Ne (10° 55′ N, 108° 17′ E) is the extremity of a peninsula that projects 2 miles S and is formed of a low wooded hill, steep on its S side. The point is steep-to on its E side. **Hai Long,** a village of considerable size with a tower, stands on the W side of the peninsula, 1 mile N of the point. **Ap Thien Khanh** is situated 3½ miles NW of Mui Ne.

Hon Lao, 25 m (81 ft) high and covered with grass, lies ½ mile E of Mui Ne and is separated from it by a channel with depths in the fairway from 4·9 to 8·2 m (16 to 27 ft).

(6.17–6.20) Mui Ké Ga to Pointe Guio
(Original dated 1865)

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Anchorage may be obtained during the NE Monsoon W of Mui Ne off Ap Thien Khanh in a depth of 6 m (20 ft). During the SW Monsoon, there is anchorage off a fishing village in the bay NNE of Mui Ne in depths of 5 to 9 m (16 to 30 ft), but the anchorage is not secure.

6.20

Nui Binh Nhon (Mount Guio) is a sand-hill 235 m (770 ft) high, lying 10½ miles NW of Mui Ne and may be easily identified. Nui Binh Nhon has been reported to give a good radar response up to 33 miles.

A point on the coast 1 mile SE of Nui Binh Nhon is 132 m (432 ft) high.

Chart 3987

6.21

Vung Phan Ri is entered between **Pointe Guio,** 13½ miles NE of Hon Lao, and Pointe Lagan (11° 10′ N, 108° 42′ E). The coast between Pointe Guio and **Phan Ri Cua,** a large fishing village at the mouth of **Song Luy,** 9 miles NNE, consists of cliffs of a reddish colour; E of Phan Ri Cua, it is sloping and wooded.

There is a depth of 0·9 m (3 ft) over the bar of Song Luy, and it is only accessible to small craft with local knowledge. **Anchorage** may be obtained, in depths of 7 to 9 m (23 to 30 ft), SW of the mouth of Song Luy with Pointe Lagan bearing 075°.

A rocky point 25 m (81 ft) high is situated 3 miles E of the mouth of Song Luy; **Ap Ha Thuy** is situated on the E side of this point. Junks anchor off the point during the NE Monsoon.

Charts 3987, 3883

Pointe Lagan is a narrow neck of land; **Ap Binh Thanh (Lagan),** a fishing vessel, is situated on the E side of Vung Phan Ri, 1 mile N of the point.

Anchorages. Good anchorage for small vessels with local knowledge may be obtained off Ap Binh Thanh in a depth of 6 m (20 ft). During the SW Monsoon vessels with local knowledge can anchor NE of Pointe Lagan in depths from 9 to 11 m (30 to 36 ft), but this anchorage is not secure.

Off-lying dangers

6.22

To the SSE of Pointe Lagan, the coastal bank, with depths of less than 20 m (11 fm), sand and coral, over it, extends 13 miles offshore, and on it are several shallow heads and dangerous wrecks.

Banc de l'Althea (Althea Bank) (10° 58′ N, 108° 47′ E) with a depth of 12·8 m (42 ft) over it, is the outermost of these shoals and lies 12 miles SSE of Pointe Lagan.

All the banks between Banc de l'Althea and the coast are rocky and as bamboo fishing stakes may be encountered on or near them, sometimes in considerable depths, Pointe Lagan should be given a berth of about 15 miles.

Chart 3883

Pointe Lagan to Mui Dinh

6.23

The coast between Pointe Lagan and Mui Dinh, 22 miles NE, is backed by mountains.

Vinh Dinh (Baie de Padaran) is entered between Pointe Lagan (6.21) and Mui Vung Trau (Mui Sung Trau) 15½ miles NE. Mui Dinh (11° 22′ N, 109° 01′ E) (6.27) lies 7 miles farther NE. **Tuy Phong (Long Huong),** a village of considerable size, and **Ap Vinh Hao** are situated on the W side of Vinh Dinh, 4 and 8½ miles respectively NNE of Pointe Lagan. Ap Vinh Hao lies close W of Mui Ca Na.

6.24

Cu Lao Hon (Hon Lao), 39 m (129 ft) high, lies 8 miles NE of Pointe Lagan. The island is mostly rocky and barren, but there is some grass on the flat parts.

Banc Ernest Simons, with a depth of 8·8 m (29 ft) over it, lies 1¾ miles E of Cu Lao Hon.

6.25

Ca Na (11° 20′ N, 108° 54′ E) is a village situated on the E side of a narrow entrance to a lagoon, 8¼ miles WSW of Mui Dinh. The lagoon lies at the S end of a gap between Nui Gio and Nui Da Bac; this gap is prominent from SW.

Two above-water rocks, the inner of which is 4 m high, lie 4 cables WSW of Ca Na. Between Ca Na and **Mui Vung Trau (Sung Trau),** the NE entrance point of Vinh Ding, 2¾ miles SE, the coast is fringed by a coral reef, extending 1½ cables offshore, beyond which the depths increase suddenly. **Les Barillets,** two rocky heads which dry 1·8 m (6 ft) and which only break in bad weather at high water, lie 2 miles NW of Mui Vung Trau and ½ mile offshore.

There is a small pier with a T-head and a depth of 3·0 m at its head, situated on the N side of Mui Vung Trau (11° 18′ N, 108° 55′ E). A buoy is moored close W of the pier-head.

Banc de Breda, with a least depth of 1·5 m (5 ft) over it, coral, lies midway between Cu Lao Hon (6.24) and Mui Vung Trau; an obstruction lies 1 mile WNW of the shallowest part of Banc de Breda.

6.26

Tidal streams in Vinh Dinh, between Tuy Phong and Ap Vinh Hao always set NNE whatever the wind, attaining rates of ¼ to ½ knot; the flow is stronger on the falling tide than on the rising tide. At Ca Na the flow sets between SW and WNW during the NE Monsoon, attaining rates of ¾ to 1 knot. In calm weather the flow is WSW on the rising tide and ENE on the falling tide.

Anchorage may be obtained during the NE Monsoon S of Ca Na and ¾ mile offshore, in depths of 9 to 13 m (30 to 43 ft), sand. A SE swell is felt in Vinh Dinh during the NE Monsoon.

6.27

Mui Dinh (11° 22′ N, 109° 01′ E) is steep and convex to seaward; high land extends SW from the cape as far as Mui Vung Trau. When approaching from SW or N, the land near Mui Dinh appears isolated.

Mui Dinh Lighthouse is a white square tower, 16 m in height, situated on the summit of the point.

There is a **signal station** on Mui Dinh with which vessels can communicate by means of the *International Code of Signals*. Storm signals are displayed. See 1.31.

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MUI DINH TO CAP VARELLA

6.28

Between Mui Dinh (11° 22′ N, 109° 01′ E) and Cap Varella, 96 miles NNE, the coast is high and rugged. Numerous bays fronted by high and rugged islands indent the coast.

Tidal streams and currents. Off the coast of central Vietnam between Mui Dinh and Cap Varella (6.97), the full force of the strongest part of the currents in both monsoons is experienced, flowing approximately parallel to the coast. During the NE Monsoon, the greatest rates recorded are from 2 to 3 knots, and from 2 to 2½ knots during the SW Monsoon. HMS *Kent* in February 1933 experienced no current off Mui Dinh, and a S-going current of ¼ knot between Mui Dinh and Hon Lon, 52 miles NNE.

MUI DINH TO VINH CAM RANH

Mui Dinh to Vung Phan Rang

6.29

Anchorage for large vessels during the SW Monsoon may be obtained off a small bay close N of Mui Dinh, with the NE extremity of the point bearing 157°, in a depth of 15 m (49 ft). Farther inshore the bottom is foul. Care must be taken to avoid **Bancs du Lutin,** consisting of three shallow heads, the N one of which has a least depth of 1·2 m (4 ft) over it, which lies ¾ mile N of Mui Dinh and 3 cables offshore. **Banc Nouvelle (Basse Nouvelle),** with a depth of 6·1 m (20 ft) over it, lies 2 miles N of Mui Dinh and 1 mile offshore.

Thon Son Hai village stands on the N side of the mouth of a river, 3 miles N of Mui Dinh.

Vung Phan Rang

6.30

Vung Phan Rang (Baie de Phan Rang) is entered between the mouth of **Song King Dinh** (11° 32′ N, 109° 02′ E) and Hon Do, a peninsula 6 miles ENE. The mouth of Song Kinh Dinh is fronted by a coral ledge which dries 0·6 m (2 ft) in places. The river is not navigable; **Phan Rang,** a town in which there is a prominent church, lies 3 miles NW of the river mouth.

A coral bank, which dries, extends 1 mile E from a point situated ¾ mile N of the mouth of Song Kinh Dinh. Some villages stand a short distance inland from this point, and there is a prominent church with a red brick tower ½ mile W of the point.

Two mountains lie at the head of Vung Phan Rang; **Nui Ca Du,** 318 m (1039 ft) high, lies 2¾ miles NW of Ninh Chu (6.32) and **Nui Quit,** 355 m (1165 ft, charted as 1098 ft) high, 1½ miles NE of Ninh Chu. **Da Tram,** a hill 90 m (297 ft) high, lies close W of Ninh Chu.

6.31

Bancs du Châteaurenault, with a least depth of 2·4 m (8 ft) over them, lie at the W extremity of a bank which extends 3¾ miles WSW from Hon Do (11° 34′ N, 109° 07′ E). No 1 Channel Entrance Light-buoy is moored SW this bank.

Plateau de Corail, with a least depth of 0·3 m (1 ft) over it, extends from ¾ to 1½ miles SW from Hon Do.

Banc du Haiphong, with a depth of 0·3 m (1 ft) over it, lies 3¼ miles WNW of Hon Do and ½ mile offshore.

6.32

Ninh Chu, a town situated at the head of Vung Phan Rang on the W entrance point of a river 5 miles WNW of Hon Do, is an important fishing centre, and salt is obtained from **Dam Nai,** a lagoon 1½ miles NNW of the town. **Khanh Hoi** village stands on the E entrance point of the river, opposite Ninh Chu.

The entrance to the river is obstructed by drying banks which leave only a narrow channel between.

Anchorage. During the NE Monsoon, good anchorage may be obtained by vessels with local knowledge in Vung Phan Rang, S of Ninh Chu, in a depth of 7 m (23 ft), with good holding ground.

Directions for Vung Phan Rang. After clearing the dangers N of Mui Dinh, steer for Nui Quit bearing 008° passing W of No 1 Channel Entrance Buoy until the summits of Nui Ca Du and Da Tram are in line bearing 320°, which leads to the anchorage off Ninh Chu.

There is a jetty at Ninh Chu.

A good road runs to Phan Rang.

Supplies. Fresh provisions can be obtained at Phan Rang.

Storm signals are displayed at Ninh Chu, but are unreliable. See 1.31.

6.33

Hon Do (11° 34′ N, 109° 07′ E), the E entrance point of Vung Phan Rang, is a low peninsula 18 m (58 ft) high, joined to the mainland by a narrow neck of land. On the W side of the peninsula, the coastal bank dries and is composed of sand.

Vung Phan Rang to Vinh Cam Ranh

6.34

A rock, above water, lies close NE of Hon Do. Between Hon Do and Hon Chong, 1¼ miles NNE, there is a small bay where temporary **anchorage** may be obtained by vessels with local knowledge.

Hon Chong, 51 m (166 ft) high, is the outermost of a group of islets lying ¼ mile E of a point 1¼ miles NNE of Hon Do; the group is joined to the mainland by a drying bank.

Between Hon Chong and the S entrance point of Baie de Vung Gang, 8½ miles NNE, the coast slopes steeply

(6.30) Mui Dinh to Mui Da Vaich
(Original dated 1930)

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from the mountains inland and is fringed with coral reefs; landing is impracticable. **Bai Lua,** an islet 26 m (84 ft) high, lies close offshore, 4½ miles NNE of Hon Chong (11° 35′ N, 109° 09′ E). A rock, with a depth of 3·0 m (10 ft) over it, lies 1¾ miles farther NNE and ½ mile offshore. On nearing Baie de Vung Gang, the coast becomes steep-to and the depths are considerable at a distance of a few cables offshore.

Chart 3028

6.35

Baie de Vung Gang is entered 2 miles WSW of Mui Da Vaich (6.36). The bay is difficult to distinguish on account of the high mountains near it. **La Sentinelle** (11° 43′ N, 109° 12′ E), a small island, lies close to the W shore of the bay, 3½ cables NNW of the S entrance point; two rocks 2½ m (8 ft) high and another which dries 0·3 m (1 ft), lie ½ cable N of La Sentinelle. To the N of those rocks the bay is divided into two basins, the outer of which affords good protection at all times, and is easy of access. Heavy squalls occur at times, but the holding ground is good. The entrance to the inner basin, 1 cable wide, is situated 4 cables N of La Sentinelle; some rocks lie close off **Pointe Tortue,** the SW entrance point of this basin. The head of the bay is shallow and a drying bank extends 1 cable from the SW side of the inner basin. The mouth of a river, with **Thon Vinh Hy** on its S side, lies 2 cables NW of Pointe Tortue; there is a tower W of the village. An obstruction lies off the mouth of the river. A fishing village stands on the NW side of the head of the bay.

Anchorage may be found in Baie de Vung Gang with La Sentinelle in line with the W of the above-water rocks which lie ½ cable N of it, and the rocks off Pointe Tortue bearing not less than 306°.

6.36

Hon Da Tai, 45 m (148 ft, charted as 267 ft) high, lies 1¼ miles E of La Sentinelle (6.35) and close offshore.

Mui Da Vaich (11° 44′ N, 109° 14′ E) lies 2 miles ENE of La Sentinelle and rises steeply from the sea with cliffs that are wooded to the edge; it forms the E extremity of a range of mountains which attains an elevation of 951 m (3121 ft) in **Nui Vung Gang,** 4¾ miles WNW of the point. On Nui Vung Gang there is an isolated rock or knob, resembling that on Cap Varella (6.97). **Nui Chua,** 756 m (2482 ft) high and cone-shaped, lies 1 mile E of Nui Vung Gang. **Rocher Varella,** 5 m (16 ft) high, and prominent, stands close S of Mui Da Vaich.

Approaches to Vinh Cam Ranh

6.37

Vinh Cam Ranh is entered between Mui Da Vaich and Mui Cam Ranh (Cam Ranh Point) 9½ miles NNE. The bay is one of the finest harbours on the coast of central Vietnam and offers secure anchorage to all types of vessels throughout the year on either side of Grande Passe (6.42) or in Baie de Binh Ba (Binh-ba Bay) (6.44), depending on their draught.

6.38

SW approach. On the SW side of the approach, 1¾ miles N of Mui Da Vaich (6.36), the coast is indented by two small bays, divided by a narrow neck of land. The entrance to the S bay, **Bai Thung,** is ¼ mile wide, and that of the N bay which is composed of two smaller bays, **Bai Hon,** the E half and **Bai Hoi,** the W, is ¾ mile wide.

Hon Chut, 116 m (382 ft) high, bare and rocky, lies 2¾ miles NNW of Mui Da Vaich, and is connected to the mainland by a below-water ridge. The passage over the ridge has a depth of 3·7 m (12 ft) in the fairway. On the E side of the passage, **Hon Sam,** 23 m (75 ft) high, and several above-water rocks lie close SSE of Hon Chut with drying coral reefs between them.

Hon Chut Lighthouse is a grey masonry tower, 6 m in height, situated near the NE extremity of the island.

Hon Salacco, 23 m (77 ft) high and rocky, lies 3½ cables NW of Hon Chut; a rocky ledge, with a depth of 0·3 m (1 ft) over it, extends 1 cable SE from the S extremity of the islet. **Basse Salacco (Salacco Shoal)** with a depth of 4·6 m (15 ft) over it, coral, lies 4½ cables NNE of Hon Salacco. A 7·3 m (24 ft) rocky patch lies 4½ cables SW of Hon Salacco.

Rocher Hon Ty (Hon-Ti), with a depth of 1·2 m (4 ft) over it, lies 6½ cables W of Hon Salacco and 3 cables from the mainland.

Bai Ca Tien is entered between a point on the main land ½ mile W of Rocher Hon Ty and Mui Ca Tien 1¼ miles NNE.

6.39

Mui Can Tien (11° 48′ N, 109° 12′ E) is the SE extremity of a peninsula joined to the mainland by a narrow neck of land.

Hon Trung, 39 m (129 ft) high, composed of dark rock with its summit covered with brushwood, lies ½ mile NE of Mui Ca Tien. A rock awash lies in mid-channel between Mui Ca Tien and Hon Trung, 3 cables W of the latter.

6.40

NE Approach. The NE side of the approach to Vinh Cam Ranh is formed by the mountainous end of a peninsula of which **Mui Cam Linh (Cam-Ranh Point)** is the E extremity. **Nui Ao Ho (Nui Thanh Xuong),** the summit of this peninsula, is 459 m (1517 ft) high and lies 2¼ miles WNW of Mui Cam Linh.

Between Mui Cam Linh (11° 52′ N, 109° 17′ E) and a point 1¼ miles SSW, the coast is cliffy. Some islets lie close off the last mentioned point, of which **Hon Giang** is the nearest to the point and **Hon Deo,** the outermost, is 14 m (47 ft) high. Hon Deo is situated on the NE side of a rocky shoal, with depths of 4·3 m (14 ft) over it.

Between Hon Deo and **Mui Cha Da,** the S end of a small peninsula 100 m (329 ft) high, 1½ miles WSW, there is a bay at the head of which is a sandy beach. Dao Tagne, an island, lies S of Mui Cha Da, and is separated from it by **Cua Be,** which is 1 cable wide and leads into Baie de Binh Ba (6.44). There are rocks, with depths of less than 2 m (6 ft) over them, on both sides of the pass, and the channel should only be used by vessels with local knowledge.

6.41

Dao Tagne, the coast of which is indented, is divided into two parts by low land with palm trees on it; the summit, 205 m (673 ft) high on which there is a conspicuous white square building, is situated on the SW side of the island. The coast of the island is composed of large boulders, some of which lie close offshore.

An islet, with a rock awash 1 cable NE of it, lies close off the SE extremity of Dao Tagne, and **Hon Kho Ngoai** (11° 50′ N, 109° 16′ E), 14 m (46 ft) high, lies ¼ mile E of this islet.

Grande Passe

6.42

Grande Passe is entered between Dao Tagne and Mui Ca Tien (6.39), 2½ miles WSW.

On the W side of Grande Passe, 1¼ miles NNW of Mui Ca Tien, is **Mui Bai Hom. Bai-Tun Rock,** with a depth of 1·5 m (5 ft) over it, lies 3 cables NE of Mui Bai Hom.

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Between Mui Bai Hom and Mui Sopt (11° 52′ N, 109° 12′ E), 2¾ miles N, there are two bays separated from one another by **Mui Bai Nan,** a small peninsula which is joined to the mainland by a narrow neck of land. Rocks, above-water, lie on the bank fringing the shores of these bays.

Hon Lo Ong Gia (Lo-Hongia), a group of rocks, one of which is 7 m (22 ft) high, lies 6 cables NE of Mui Bai Nan; rocks, awash, lie within a distance of 3 cables SSE of Hon Lo Ong Gia.

6.43

Mui Sopt is the N extremity of a range of mountains, of which Mui da Vaich (6.36) is the E extremity.

Baie de Binh Ba

6.44

Baie de Binh Ba is entered between **Mui Nam** (11° 51′ N, 109° 14′ E), the NW extremity of Dao Tagne, and Mui Hon Lan, 2 miles NW. The S side of the bay is formed by a bay in the N coast of Dao Tagne. A rock, 7 m (23 ft) high, lies 1 mile SE of Mui Nam and 1½ cables offshore. A small jetty extends NW from the coast of Dao Tagne 1¼ miles ESE of Mui Nam on the E side of this bay. A rock, with a depth of less than 0·3 m (1 ft) over it, lies close S of the head of the jetty and a buoy (conical) is moored close off the jetty. **Ap Binh Ba** stands at the head of the bay.

6.45

The NE side of Baie de Binh Ba lies between Mui Cha Da (6.40) and Mui Hon Lan. **Hon Xay,** 54 m (178 ft) high and connected to the mainland by a bank ½ cable wide, which dries 1·8 m (6 ft), lies 2¼ miles ESE of Mui Hon Lan. Two short piers extend SW from the head of the bay between Mui Cha Da and Hon Xay, and have depths of 7·9 m and 10·4 m at their heads. A mooring buoy is situated 3 cables W of Hon Xay. Another islet, 15 m high, lies 2 cables NW of Hon Xay and ½ cable offshore. **Mui Bai Choi** projects a short distance from the coast midway between the latter islet and Mui Hon Lan. A T-headed pier extends 3 cables SE from the shore close E of Mui Bai Choi. Four mooring buoys are situated near its head.

Mui Hon Lan (11° 53′ N, 109° 12′ E), the NW entrance point of Baie de Binh Ba, is fairly steep-to. The old lighthouse situated on the point is conspicuous. The Harbour Entrance Control Post, a prominent white building, is situated 1 cable N of the S extremity of the point.

6.46

Le Goulet, at the inner end of Grande Passe (6.42), passes between Mui Hon Lan and Mui Sopt (6.43) ¾ mile SW; it leads into Vinh Cam Ranh and has a depth of 22 m (12 fm) in the fairway.

VINH CAM RANH

6.47

Vinh Cam Ranh, which offers secure anchorage to all classes of vessels throughout the year, is easy of access and is surrounded by mountains. The bay has depths of 9 to 18 m (33 to 60 ft).

6.48

Mui Ong Dinh lies 2 miles SW of Mui Sopt (6.43). **Îlot Ba Ninh** lies in the SW part of Vinh Cam Ranh 4 miles SW of Mui Sopt. Between the shore W of this islet and **Pointe de Nui Dat** (11° 52′ N, 109° 07′ E) 2 miles NNE, a sea wall was under construction in 1978.

6.49

Anse de Ba Ngoi (Ba-Ngoi Bay), which is shallow, is entered between Pointe de Nui Dat and **Cam Lam,** a point 1¾ miles NE. The village of **Dinh Tra Long** is situated at the head of the bay, where the shore bank is narrow.

A coral bank, which dries, extends 4 cables S from Cam Lam, and a railway pier with a T-shaped head, alongside which vessels up to 107 m in length and 7 m draught can berth, extends a short distance beyond the bank. A **light** is exhibited from a white round concrete tower with black bands situated on the pier-head.

Banc de Da Bac (Da Bak Bank), nearly awash, lies ½ mile S of the pier-head. A black tower with white bands stands on the bank.

Cam Lam village is situated on the point of the same name. Coasters call here and it is connected to the railway system. There is a custom house at Cam Lam and provisions can be obtained.

Storm signals are displayed at Cam Lam, 9 cables NNE of the head of the railway pier. See 1.31.

6.50

On the NW side of Vinh Cam Ranh, between Cam Lam and **Mui Con Ke,** 3¼ miles NE, **Rocher Da Do,** a white rock 6 m (20 ft) high, lies 9 cables NE of Cam Lam and close offshore. **Rocher Da Nau,** with a depth of 1·5 m (5 ft) over it, lies 8½ cables SE of Rocher Da Do.

There are three patches of mangrove on the edge of the coastal bank ¾ mile, 1 mile and 1¼ miles, respectively, NE of Rocher Da Do, all about ¼ mile offshore.

Two towers stand close inland on the NW side of Vinh Cam Ranh, one 6 cables N of Rocher Da Do, and the other 8 cables NNW of Mui Con Ke (11° 56′ N, 109° 11′ E).

6.51

On the E side of Vinh Cam Ranh, **Pointe de la Pagodé (Pagoda),** 64 m (211 ft) high, lies 5½ cables N of Mui Hon Lan (6.45). A wharf for coasters is situated 2 cables NNW of Mui Hon Lan. **Cam Ranh** village is situated between Pointe de Pagodé and **Pointe Bai Sau,** 1¼ miles N. **Villa Barthélémy,** which is prominent, stands 2½ cables SE of Pointe Bai Sau. Some buldings near the village are in ruins. A tower stands ½ mile SE of Pointe Bai Sau; the tower is reported to be marked by air obstruction lights.

A **light** is exhibited from a white concrete tower with black bands, 8 m in height, situated on Pointe Bai Sau.

A radio tower, painted red and white in bands and marked by air obstruction lights, stands 6½ cables SE of Pointe Bai Sau.

A concrete causeway, 1 cable in length, extends W from the coast ½ mile SSE of Pointe Bai Sau. A concrete pier, 160 m in length with a depth of 12·8 m alongside, for the use of tankers, is situated at the head of the causeway; a mooring dolphin stands 45 m W of the seaward end of the pier. Both the dolphin and the seaward end of the pier are marked by lights.

A sandbank, which dries 0·6 m (2 ft) extends 3 cables W from Pointe Bai Sau, and continues ½ mile farther with depths of 0·3 to 1·2 m (1 to 4 ft) over it, and is steep-to on its S side. In 1948 this bank had extended farther W than charted.

Nui Trong, a bare yellow sand-hill, 181 m (595 ft) high, lies 1¾ miles ENE of Pointe Bai Sau. Air obstruction lights mark a tower situated on the summit of Nui Trong.

6.52

A causeway extends 2½ cables WSW from the shore 1¼ miles NNE of Pointe Bai Sau, with a pier extending 4½ cables WNW from its head. In 1970, from a position 1 mile W of Pointe Bai Sau a channel marked by **light-beacons,** was dredged to a depth of 9·1 m (30 ft) and led

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to the pier-head. No 1 Light-buoy (can; light flashing white every 2½ seconds) is moored at the entrance to this channel 1 mile W of Pointe Bai Sau.

Spoil grounds are situated NW and SE of the dredged channel.

6.53

Lagune de Thuy Trieu (Thui Trieu Lagoon) is entered between Mui Con Ke (6.50) and **Con Xung,** 1¼ miles NE; it extends 12 miles N, parallel with the coast, to a marsh separated from the sea by Plage de Thuy Trieu (6.57), a barren sandy plain (chart 3883). The lagoon is not navigable and is crossed by a causeway 1¼ miles N of Con Xung.

6.54

Tidal streams in Vinh Cam Ranh. At springs, the flow inside the bay and at the entrance is less than 1 knot.

Pilotage in Vinh Cam Ranh is compulsory.

Anchorage areas. Various anchorage areas are established on either side of Grande Passe, in Baie de Binh Ba, and W, NW and N of Mui Sopt in Vinh Cam Ranh. These are indicated on the chart and are allocated by the Harbour Master through the Harbour Entrance Control Post on Mui Hon Lan (6.45).

Facilities. Tugs are available to assist in berthing. There is an 89-ton floating crane.

Deratting certificates can be issued at Cam Ranh (see 1.92).

VINH CAM RANH TO BAIE DE NHA TRANG

Mui Cam Linh to Mui Dong Ba

6.55

Hon Tai (11° 54′ N, 109° 17′ E) is the largest of some small islets which extend 2 cables offshore, 2½ miles NNW of Mui Cam Linh (6.40). **Baie de Ba Dai** is entered between Hon Tai and a point 2 miles N. A ledge, on which there are some islets and above and below-water rocks, extends ½ mile SSE from the N entrance point of the bay; a rock, with a depth of less than 2 m (6 ft) over it, lies at the extremity of this ledge, 2½ cables SSE of **Hon Mieu Ngaoi,** the largest islet which is 22 m (73 ft) high. A bank, on which there are two islets, extends 7 cables E from the N entrance point of the bay; the inner islet is **Hon Nhan** and the E of the two islets is 16 m (53 ft) high.

A tower stands near the 150 m (493 ft) summit of Nui Bai Thong, situated 8 cables NW of Hon Nhan.

Submarine cables are landed in the S part of Baie de Ba Dai.

6.56

Between the N entrance point of Baie de Ba Dai and **Mui Lo Gio,** which is bare and rocky, 1¼ miles NNE, the coast is steep and cliffy.

Anse de la Carcasse is entered between Mui Lo Gio (11° 59′ N, 109° 17′ E) and **Mui Giai Nanh,** 1½ miles NNW. Some above-water rocks lie close offshore in the S part of this bay, and also along its W side. **Hon Sop,** 3 m (10 ft) high, lies 1 mile NNW of Mui Lo Gio. **Nui Ganh Giang,** 145 m (477 ft) high, lies 1¾ miles NW of Mui Lo Gio.

Anchorage may be obtained during the SW Monsoon N of Nui Ganh Giang.

Chart 3883

6.57

Plage De Thuy Trieu, a narrow neck of land bordered by low sand-hills close inland, lies between Mui Giai Nanh (11° 58′ N, 109° 16′ E) and a point 9½ miles NNW; Mui Dong Ba (6.62), 2 miles farther NNE, is situated on the W side of the S approach to Baie de Nha Trang and rises steeply from the sea.

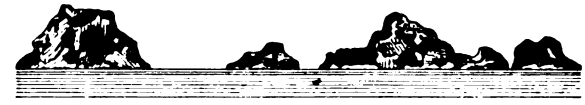
Off-lying dangers and islets

6.58

Îles des Pêcheurs are a group of island lying NNE of Mui Lo Gio. **Hon Ngaoi** (12° 00′ N, 109° 20′ E), 111 m (364 ft) high, steep and sharp, with a white cairn on its summit, is the S islet of the group and lies 3¾ miles NE of the point.

Roche Vulcan, with a depth of 1·5 m (5 ft) over it, lies ½ miles N of Hon Ngaoi.

Hon Noi is the largest of Îles des Pêcheurs; its summit 98 m (322 ft) high, on which there is a white cairn, lies 2 miles N of Hon Ngaoi.



Hon Ngaoi *Hon Noi*

Îles des Pêcheurs bearing 255°, 15 miles
(Original dated 1933)

Banc de Castlereagh, with depths of 11·3 m (37 ft) nears its E end and 12·2 m (40 ft) near its W end, lies between 1¾ and 4¼ miles W of Hon Noi (12° 02′ N, 109° 20′ E) and 3 miles offshore.

Bancs de Thuy Trieu, on which there are several shallow heads, lies 5 miles NW of Hon Noi; the shallowest of these heads has a depth of 5·5 m (18 ft) over it.

Banc du Tondu, with a least depth of 7·6 m (25 ft) over it, lies 1½ miles farther NW.

6.59

Vessels without local knowledge should not pass between Îles des Pêcheurs (12° 02′ N, 109° 19′ E) and the coast.

6.60

Dumping grounds. Four dumping grounds for explosives lie with their centres 37½ miles SE and 13, 23 and 67½ miles ENE from Mui Lo Gio (11° 59′ N, 109° 17′ E) (6.56), respectively. The dumping grounds 13 miles and 23 miles ENE of Mui Lo Gio are disused.

BAIE DE NHA TRANG

6.61

Several islands, the largest of which is Hon Tre, and Grand Banc (6.69) lie in the approaches to Baie de Nha Trang.

Southern approach to Nha Trang

6.62

Baie de Nha Trang (6.71) is entered from S between **Mui Dong Ba** (12° 08′ N, 109° 14′ E) and Mui Rach Trang (6.63) the E extremity of Hon Tre, 7½ miles ENE.

Hon Tam, 117 m (384 ft) high which has no well defined summit, lies in the middle of the S approach to Baie de Nha Trang, 2½ miles NNE of Mui Dong Ba. The bay 2 miles W of Hon Tam is encumbered with coral reefs. A rock, 3½ m high, lies on the outer edge of the reef in the middle of the bay.

Hon Mieu (12° 11′ N, 109° 13′ E), 99 m (325 ft) high, lies ¾ mile NW of Hon Tam. There are two villages on Hon Mieu.

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Cue Bé is entered W of Hon Mieu and S of a hilly peninsula 145 m (476 ft) high. **Massif du Cua Bé,** 328 m (1075 ft) high, lies on the SW side of the entrance. There are depths of over 11 m (36 ft) between the edge of the coastal bank off the bay and Hon Mieu. Cua Bé is encumbered by a bank of mud and sand, but there is a narrow channel at low water by which small craft with local knowledge can reach **Thon Truong Dong,** a village distinguishable by its coconut trees and pagodas, situated on the N side of the entrance ½ mile within. Several streams discharge into Cua Bé, one of which is connected with Song Cai (6.72).

There is **anchorage,** frequented by junks, W of Hon Mieu. During the SW Monsoon this anchorage is sheltered from the swell which frequently comes from a SE direction. During the NE Monsoon it is sheltered from the heavy swell by the NW end of Hon Tre.

Mui Chut (12° 13′ N, 109° 13′ E) lies 9 cables NNW of Hon Mieu. There is a jetty at **Cauda,** a village 2 cables S of the point, at which landing can be effected.

Mui Chut Light-structure is a tower on a yellow house, 15 m in height, situated on the point.

6.63

Hon Tre lies on the NE side of the S approach to Baie de Nha Trang. There are three mountain ranges on the island, connected by low isthmuses. The island is densely wooded and there are steep cliffs in places. **Mui Rach Trang** (12° 12′ N, 109° 20′ E) is the E extremity of the island.

A ridge, on which there are some islets and above-water rocks, extends ¾ mile ESE from Mui Rach Trang. The highest of these islets, **Hon Noc,** has an elevation of 58 m; the outermost rock is 8 m high and steep-to.

Mui Rach Trang Light-structure is white round tower with black bands, 14 m in height, situated on the point.

6.64

On the S side of Hon Tre, 1½ miles W of Mui Rach Trang, two bays indent the coast. **Vung Dam Chinh,** the E bay is situated close within the entrance, and **Vung Dam Lom** the other bay in the N part of the indentation. Good **anchorage** can be obtained in both these bays during the NE Monsoon.

Hon Mun (Mung), 183 m (601 ft) high, lies 2 miles SW of Mui Rach Trang. There are irregular depths of 13 to 27 m (43 ft to 15 fm) in the fairway between Hon Tre and Hon Mun. **Rocher Rond,** 69 m high, lies close off the E end of Hon Mun and another rock, above-water, lies close off its NE side, ½ mile NW of Rocher Rond.

Hon Mot, 91 m (299 ft) high and wooded, lies 1¼ miles WNW of Hon Mun; is it separated from the SW side of Hon Tre by a channel 1½ cables wide with a depth of 11·6 m (38 ft) in the fairway. A radio tower stands on the summit of Hon Mot.

Roche du Lion, with a depth of 4·0 m (13 ft) over it, lies 3½ cables W of Hon Mot. Due Ba (6.74), bearing 326° and just open SW of Mui Nam, see below, leads close SW of Roche du Lion.

The SW side of Hon Tre from abreast Hon Mot to **Mui Nam,** the W extremity of Hon Tre, 3½ miles NW, is clear of dangers.

There are two villages on Hon Tre, but the approach to them is obstructed by fishing stakes during the fishing season.

6.65

Directions. When approaching Baie de Nha Trang from S, pass E of Îles des Pêcheurs and proceed either between Hon Mieu and Hon Tam, or between the latter and Hon Mot, avoiding Roche du Lion as directed above.

Eastern approach to Nha Trang

6.66

Hon Dung (12° 16′ N, 109° 22′ E), 217 m (712 ft) high and prominent with a framework tower on its summit, lies in the E approach to Baie de Nha Trang, 4½ miles NNE of Mui Rach Trang. The islet is steep-to and bordered at the base of its cliffs by a narrow ridge of shingle. There is slight vegetation on the islet.

Hon Cau, 115 m (378 ft) high and bare, lies 6 cables NE of Hon Dung; in the offing this island resembles a ruined castle. Two rocks lie off its S end; the outer, 74 m (243 ft) high, at a distance of 2 cables, and the other 19 m (62 ft) high at a distance of 1 cable.

Hon Cha La, 191 m (627 ft) high and rocky, lies in the NE part of the approach, 2½ miles SE of Mui Ban Thang (12° 24′ N, 109° 21′ E). Hon Cha La is bare except for some scrub on its summit, on which is a prominent boulder.

Charts 3028, 3883

6.67

On the NW side of the E approach to Baie de Nha Trang, **Mui Ban Thang** is the E extremity of a mountainous and wooded peninsula, 12 miles long, which separates Baie de Binhcang (6.76) from Baie de Van Fong (6.81). **Hon Ran Cua (Hon Heo),** the summit of this peninsula, 820 m (2689 ft) high, is situated near the centre of its SE end, 4 miles W of Mui Ban Thang.

Chart 3883

6.68

Mui Bai Chuong (12° 22′ N, 109° 20′ E), 1½ miles SSW of Mui Ban Thang, is the S extremity of a peninsula, 203 m high, which is joined to the mainland by a low neck of land.

Bai Cay Ban (Baie Cai Sung), which is foul, is entered between Mui Bai Chong and **Mui Da Chong (Mui Hon Thi),** 2½ miles SW.

Hon Bac, 18 m (53 ft) high with rocks close off its NW and E sides, lies 1½ miles ESE of Mui Da Chong (12° 21′ N, 109° 17′ E).

6.69

Grand Banc lies near the middle of the E approach to Baie de Nha Trang; the depths on this bank are very irregular. **Roche du Nord-ouest** is the shallowest head, with a depth of 0·3 m (1 ft) over it, coral. The W extremity of Hon Do (6.80), bearing 000° and well open E of Mui Ban Thang, leads E of this bank and W of Hon Dung, which can safely be approached on its W side to a distance of 2 cables.

6.70

Tides and tidal streams. There is only one high water daily in Baie de Nha Trang.

In the bay the flow is weak and is governed by current rather than tidal stream. In a position 1 mile NNE of Hon Bac, the flow sets SSW on the falling tide attaining a rate of 1 knot 3 hours after local high water, with a range of tide of 1·2 m; it then turns anticlockwise without becoming slack and sets ESE at ¼ knot near low water.

Directions. When approaching Baie de Nha Trang from NE, pass about ½ mile off the NW end of Hon Cha La (6.66) and well outside the line joining the entrance points of Bai Cay Ban (6.68).

6.71

The N side of Hon Tre (6.63) forms the S side of the E approach to Baie de Nha Trang.

Vung Dam Tre, divided into two parts by a small projection on its SW side, is entered between **Mui Tre**

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(12° 13′ N, 109° 19′ E) situated 2 miles NW of Mui Rach Trang, and **Mui Sake,** 4¼ miles W. Secure **anchorage** during the SW Monsoon may be obtained by vessels with local knowledge in this bay.

Mui Bo Co, the N extremity of Hon Tre, is situated nearly 3 miles WNW of Mui Tre.

Vung Dam Lia, entered between Mui Bo Co and **Mui Lang,** 1¼ miles WSW is divided into two by a projection on its SW side. Vung Dam Lia affords secure **anchorage** during the SW Monsoon to vessels with local knowledge.

Rocher Noir, ½ m (2 ft) high, lies ¼ mile off the NW end of Hon Tre.

Baie de Nha Trang

6.72

Baie de Nha Trang is entered from S between Mui Chut (6.62) and Mui Nam (6.64), and from E between Mui Bo Co and Mui Cay Ga, 4¼ miles NNW.

Between Mui Chut (12° 13′ N, 109° 13′ E) and the S entrance point of Song Cai, 3 miles N, the SW shore of the bay is fronted by a narrow sandy beach, backed by sand-hills, with a red and white chequered tank standing ¼ mile within the coast 1½ miles NW of Mui Chut. The village of **Chut** stands close W of Mui Chut. In the vicinity of Mui Chut Light-structure, a **pipeline** extends for 4 cables in a NE direction; three moorings lie near the seaward end of the pipeline.

Three **submarine cables** run ENE from the shore 2 miles NW of Mui Chut, between Hon Tre and Grand Banc, thence to seaward. See 1.25.

A prominent statue of Buddha is situated above a temple on the summit of a hill 2¾ miles NW of Mui Chut; the statue is floodlit and an air obstruction light marks its head.

6.73

The mouth of **Song Cai** (12° 16′ N, 109° 12′ E) is about 1 cable wide, and the river is obstructed by a bar, 3 cables wide, S of its entrance.

Cu Huan, a fishing village, is situated on a low strip of sand which extends 3 cables S from the S entrance point of the river.

6.74

Hon Cut Chim, 6 m high, lies 1 mile E of the N entrance point of Song Cai. **Hon Do,** 14 m high and covered with bushes, lies on the outer edge of the coastal reef, which dries, extending ¼ mile offshore ½ mile NE of the N entrance point of Song Cai.

Between the N entrance point of Song Cai and **Mui Cay Ga** (12° 18′ N, 109° 15′ E), 3¼ miles NE there is a bay. Mui Cay Ga rises steeply from the sea to several peaks. **Due Ba,** 573 m (1880 ft) high, lies 5½ miles NW of the point.

Île Tortue, 49 m (161 ft) high, so named from its resemblance to a tortoise, lies 8 cables S of Mui Cay Ga. Its E side is clear of danger, but a coral reef, which dries 0·6 m (2 ft), extends 2¾ cables W from the islet.

6.75

Nha Trang, a town with a population exceeding 20 000, is situated along the shore of the bay S of Cu Huan (6.73). **Thon Cu Lao,** a large village in a clump of coconut trees, stands on the N bank of Song Cai, just within the mouth.

Above the bar, Song Cai is navigable by boats for a distance of 30 miles; **Dien Khanh (Khanh-Hoa),** the capital of the province, is situated 7 miles from the mouth.

Landing may easily be obtained on the beach, and boats with local knowledge can enter the river.

Supplies. Fresh provisions can be obtained at Nha Trang; fresh water is obtainable at Cauda (6.62).

Facilities. Deratting exemption certificates can be issued; see 1.92.

Communications. Regular communication by sea is maintained with Vietnam ports. There is a coast radio station at Nha Trang.

Storm signals are displayed. See 1.31.

Baie de Binhcang

6.76

The entrance to **Baie de Binhcang** or **Vungthuc** is between Mui Cay Ga (6.74) and **Mui Da Chong** (12° 21′ N, 109° 18′ E), 4 miles NE. **Hon Cu Lao,** 52 m high with a rocky patch which dries, ½ mile SW of it, lies on the SW side of the bay, 3½ miles NW of Mui Cay Ga and ¾ mile offshore. **Hon Thi,** 225 m (738 ft) high, lies on the NE side of the bay 4 miles NW of Mui Da Chong and ½ mile offshore. Several islets lie WNW of Hon Thi.

Baie de Binhcang is shallow NW of the islands, and at the head of the bay there is a shallow marshy inlet which is the common estuary of several rivers. **Ninh Hoa** town is situated 3 miles above the mouth of Song Dinh.

Tidal streams off Baie de Binhcang set NW on a rising tide at a rate of 1 knot.

Good **anchorage** can be obtained in Baie de Binhcang during both monsoons, in any convenient depth less than 18 m (60 ft).

BAIE DE BEN GOI

Chart 3028

Approaches to Baie de Ben Goi

6.77

Baie de Ben Goi (6.86) is approached between Mui Ban Thang (12° 24′ N, 109° 21′ E) (6.67) and Mui Ganh (6.83), the S extremity of the Hon Gom peninsula, 11 miles NE. Baie de Van Fong (6.81), which leads into Baie de Ben Goi from S, is entered between Hon My Gian (12° 30′ N, 109° 14′ E) and Mui Co, the SE extremity of Hon Lon, 6¾ miles NE.

Chart 3883

6.78

Several mountain peaks, frequently obscured by clouds, especially during the NE Monsoon, lie NW of Baie de Ben Goi. **Chu Mu (La Mère et L'Enfant),** 2050 m (6726 ft) high, prominent and surmounted by two rocks which appear like fingers of unequal size, lies 30 miles NW of Mui Ban Thang and 16 miles inland; **Nui Hon Chao,** 1503 m (4930 ft) high, lies 10½ miles ENE of Chu Mu.

Chart 3028

Nui Da Den, 621 m (2036 ft) high, lies 20 miles NW of Mui Ban Thang. **Sommet Conique,** 808 m (2650 ft) high, lies 3 miles ESE of Nui Da Den. **Hon Giup,** which has a double conical summit 1128 m (3700 ft) high, lies 10 miles NE of Nui Da Den.

6.79

The **Hon Gom peninsula,** which is joined to the mainland by a low narrow isthmus 5 miles long, forms the NE side of Baie de Ben Goi. In the middle of the peninsula, a mountainous projection extends 4 miles SW from its W side. **Hon Thon,** the summit of this projection situated 8 miles NNW of Mui Ganh (12° 34′ N, 109° 26′ E), is 450 m (1475 ft) high and prominent. The S end of the Hon Gom peninsula is mountainous; **Le Doigt (Doit),** 317 m (1039 ft) high,

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lies 3½ miles NNW of Mui Ganh, and **Mont Chauve** lies ¾ mile N of the same point; both these peaks are prominent.

Vung Cay Ban
6.80

On the SW side of the approach to Baie de Ben Goi, **Vung Cay Ban (Cai Ban)** is entered between Mui Ban Than (12° 24′ N, 109° 21′ E) and Hon My Giang 5 miles NW.

Banc de Deo Ngan, with depths of less than 10 m (33 ft) over it, and possibly less than those charted, extends 3 miles N from Mui Ban Thang. There is a rock, awash, 1 mile NW of Mui Ban Thang and 4 cables offshore.

Ninh Phuoc (Ninh Tinh) is situated at the head of the bay.

Hon (Thon) My Giang, 76 m (248 ft) high, is connected to the mainland by a coral ledge, which dries. **Hon Ko (Île Noire)** lies on the outer end of a bank which partly dries, extending 6½ cables offshore and 6 cables S of Hon My Giang.

Islets and dangers extend 4 miles E from Hon My Giang. **Hon Hoa,** 25 m (82 ft) high, is the outermost of these islets, and lies on the SW side of a shoal with depths from 2·1 to 3·0 m (7 to 10 ft) over it; a rock, which dries, lies 1 cable N of Hon Hoa.

Hon Do (Hon Heo), 135 m (443 ft) high, bare and rocky, lies 9 cables W of Hon Hoa. An above-water rock lies close N of the E end of Hon Do, and a coral patch, with a depth of 14·0 m (46 ft) over it and possibly less than the depth charted, lies 6 cables SW of the islet.

Hon Qua (Theo), 37 m (122 ft) high, lies 1 mile W of the N extremity of Hon Do and ¾ mile ESE of Mui Muong, the NE extremity of Hon My Giang. Several dangerous rocks lie within ¾ mile SSE of Hon Qua and ½ mile N of the islet.

Baie de Vang Fong
6.81

The SW side of **Baie de Vang Fong** consists of a bay entered between Hon My Giang (12° 29′ N, 109° 18′ E) and Pointe Hon Khoi 6¾ miles NW. **Mui My A** is a drying spit at the head of the bay extending 3 cables offshore. A coral patch, with a least depth of 0·6 m (2 ft) over it, lies in the middle of the bay ¾ mile offshore.

Pointe Hon Khoi is the extremity of a peninsula of the same name, the summit of which is 146 m (478 ft) high and lies 1½ miles SSW of the point.

6.82

Hon Lon (12° 37′ N, 109° 19′ E), wooded and mountainous, lies on the NE side of Baie de Vang Fong; **Nui Ba Lon,** with a flat summit 556 m (1856 ft) high, is situated near its N end, and **Le Tricorne,** near the S end of the island, attains an elevation of 393 m (1289 ft, charted as 1216 ft), 1 mile NW of **Mui Co,** the E extremity of the island.

Hon Tai, 47 m (154 ft) high, lies 1¼ miles WSW of Mui Co and 2 cables off the SW side of Hon Lon.

The SW side of Hon Lon, from abreast Hon Tai to **Mui Ganh Rong,** 4 miles NW, is clear of danger. Between the latter point and a point 1½ miles NW there is a bay. The village of Ninh Dao is situated at the head of the bay.

Hon Den, 21 m (68 ft) high, lies ¾ mile WSW of the NW entrance point of this bay. Except on its E side, the islet is fringed by a rocky ledge and depths from 1·8 to 4·6 m (6 to 15 ft) lie within 2½ cables of its NW end; a patch, with a depth of 2·4 m (8 ft) over it, lies 3½ cables WNW from the islet.

Anchorage during the NE Monsoon may be obtained under the lee of Hon Lon with a mud bottom, but this anchorage is open to SE.

Lach Cua Be
6.83

Lach Cua Be which is entered from S between Mui Co (12° 40′ N, 109° 19′ E) and **Mui Ganh,** 1¼ miles ENE, separates the E side of Hon Lon from the W side of the Hon Gom peninsula (6.79). Between Mui Co and **Pointe Nord-Ouest,** 4½ miles NNW, the E side of Hon Lon is clear of danger, except for a below-water rock which lies 1 cable E of the latter point.

Roche du Lion, with a depth of 2·7 m (9 ft) over it, lies 3 cables S of Mui Ganh.

The NE side of Lach Cua Be between Mui Ganh and **Pointe Nord-Est,** 4¾ miles NNW, is indented. Midway between these two points is **Vung Thu.**

Anchorages. In Lach Cue Be small vessels with local knowledge can make fast to the trees along the shores almost anywhere. In the NE Monsoon, good anchorage may be obtained in Vung Thu in a depth of 12 m (39 ft), 1½ cables offshore.

Cua Van
6.84

Cua Van is a bay on the W side of the Hon Gom peninsula, and is entered from S between Pointe Nord Est (12° 38′ N, 109° 24′ E) and **Mui Nai Ba Ken,** 1¾ miles WNW.

Hon Ong lies on the E side of Cua Van, 1 mile NE of Pointe Nord Est and ¼ mile off the E shore. The E shore of the islet is mainly foul.

To the E of Hon Ong, a drying bank, with a rock 1 m (3 ft) high lying close off its W edge, extends 3 cables from the W side of the Hon Gom peninsula, leaving a narrow channel between the rock and the SE side of Hon Ong.

Hon Gam lies 4 cables NE of Hon Ong and 2 cables off the E shore.

On the W side of Cua Van, **Hon Do** lies 6 cables ENE of Mui Nai Ba Ken with a deep channel between it and the shore.

The N shores of Cua Van are indented; **Baie Olivier** is situated on the NW side of Cua Van, and **Vung Nai** at the N end. Midway between these two bays, a rock, which dries 0·3 m (1 ft), lies 2 cables offshore on the edge of the shore bank.

Cua Van affords land-locked **anchorage** in any of its bays; Baie Olivier, in which the bottom is mud, is most frequented.

Supplies. There are several villages in the neighbourhood of Cua Van, where poultry, eggs and fish can be obtained.

Lach Co Co
6.85

Lach Co Co is a continuation of Lach Cue Ba, and is entered from E between Mui Nai Ba Ken and a point on the N side of Hon Lon, 6 cables S.

On the N side of Lach Co Co, **Baie du Lutin** is entered between Mui Nai Ba Ken and the SE extremity of Hon Sang, 1 mile W. **Hon Sang** (12° 39′ N, 109° 21° E) is connected to the W shore of this bay by a narrow drying coral reef. **Vung Ke,** a small bay in which there are several rocks nearly awash, is entered at the NW end of Baie du Lutin, between the NE extremity of Hon Sang and a point 3 cables NE.

On the S side of Lach Co Co, on the N side of Hon Lon, **Bai Tranh** is entered W of a point situated 1½ miles

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WNW of Pointe Nord Ouest (6.83). An islet, with a rock 4 m high reported to lie 1 cable ESE of it, lies 3 cables E of the N extremity of Hon Lon and 1 cable offshore.

Cua Lon is the W end of Lach Co Co and leads into Baie de Ben Goi between **Hon Ke,** off the N extremity of Hon Lon, and **Mui Co Co,** 1½ miles NNE.

Baie de Ben Goi

6.86

Baie de Ben Goi is entered between Pointe Hon Khoi (6.81) and the NW end of Hon Lon. On the SE side of the bay several islets lie close off the NW end of Hon Lon. **Hon Mai** (12° 38′ N, 109° 18′ E), the outer islet 41 m (135 ft, charted as 196 ft) high, lies 1¼ miles W of the N extremity of Hon Lon. A detached patch, which dries, lies 2 cables S of this islet.

Banc du Milieu, with a depth of less than 0·3 m (1 ft) over it, lies ½ mile W of Hon Mai.

6.87

Vung Hon Khoi, at the S end of Baie de Ben Goi, is entered between the N extremity of the Hon Khoi peninsula (6.81) (12° 35′ N, 109° 14′ E) and a point on the W shore 2 miles NW. A rock, with a depth of less than 2 m (6 ft) over it, lies 2 cables from the E shore, 7½ cables WSW of the E entrance point, with a similar rock 1½ cables farther S. Midway between the E entrance point and the head of the bay, there is an inlet which dries, and at the head of which are some saltings. On the E side of the entrance to this inlet is a jetty, the S part of which was in a bad state of repair in 1950. A dredged channel, the outer end of which is marked by a buoy, leads into the inlet. **Dong Hai** village stands on the N side of the entrance; a custom house is situated on the S side.

Anchorages. Vung Hon Khoi affords good shelter for small vessels with local knowledge, which can obtain anchorage in a depth of 4 m (13 ft), good holding ground, 3 cables N of the buoy marking the seaward end of the dredged channel leading to Dong Hai village, keeping clear of the two rocks 2 cables to E. Anchorage may also be obtained farther out in a depth of 7 m (23 ft) with Hon Mai bearing 058° and the N extremity of the Hon Khoi peninsula bearing 126°.

6.88

A patch of coral, with a depth of 1·2 m (4 ft) over it, lies 2 miles N of the N extremity of the Hon Khoi peninsula and 1½ miles from the W shore of Baie de Ben Goi.

Plateau de la Pérouse, a group of detached shoals with several rocky heads, lies in the middle of the S end of Baie de Ben Goi 2½ miles W of Hon Mai.

To the NE of the W entrance point of Vung Hon Khoi, the NW side of Baie de Ben Goi is broken by the mouths of numerous rivers. Numerous coral patches which dry, and several islets fringed by coral reefs, the largest of which lies 3½ miles NNW of Pointe de Hon Khoi (12° 35′ N, 109° 14′ E) lie on the coastal bank.

6.89

Many fishing villages, where small supplies of fresh provisions can be obtained, are situated on the coast; **Van Ninh (Gia),** situated 7 miles N of Pointe Hon Khoi (6.91) and **Tu Bong,** 1 mile inland near the head of Baie de Ben Goi, are the two largest. A tower stands 1 mile W of the village of **Cao (Kao) Nem,** situated 6 miles NNW of Pointe Hon Khoi.

6.90

A chain of islets lies off this stretch of coast separated from it by **Cua (Kua) Gia,** a channel with a least width of 7 cables between the reefs on either side, and with depths of not less than 5·5 m (18 ft) in the fairway.

Hon Vung (12° 40′ N, 109° 16′ E), 20 m (65 ft) high, lies 4 miles WNW of Mui Co Co (6.85) and is the SW islet of the chain.

Hon Duoc, Îlot Midi and **Hon Bip,** connected by coral reefs, lie from 1¼ to 3¾ miles NE of Hon Vung. Hon Bip is 144 m (471 ft) high, and a coral reef, which dries, extends 3 cables from its NW side.

Hon Mot, 29 m (94 ft) high, lies ½ mile NE of Hon Bip.

Hon Mao, the NE islet of the chain, is 15 m (48 ft) high and lies 7 cables NE of Hon Mot.

6.91

On the E side of Baie de Ben Goi, 1 mile NE of Mui Co Co (6.85), there is a bank on which is a rock which dries 1·2 m (4 ft) lying ¼ mile offshore. **Mui Da Son** is situated 2½ miles NE of Mui Co Co and the village of **Vinh Giat,** 1¾ miles farther NE. **Hon Tri** lies 7 cables NE of Mui Ba Son.

Vung Trau Nam, a shallow bay at the N end of Baie de Ben Goi, is entered between **Tuan Le** village, situated 3 miles N of Vinh Giat (12° 43′ N, 109° 23′ E), and a point 2 miles WNW. The village of **Ninh Ma** stands at the head of the bay.

6.92

Directions for Baie de Ben Goi. This bay can be entered either through Baie de Vang Fong (6.81), or through Lach Cua Be and Lach Co Co which are deep throughout. If entering through Baie de Vang Fong, pass between Hon Mai and Banc du Milieu, keeping Nui Da Bia (6.97) in line with the summit of Hon Mao (6.90) bearing 023°, which leads fairly close to Hon Mai but in a depth of 18 m (10 fm).

Anchorage in Baie de Ben Goi can be obtained anywhere on the above leading line as convenient, or nearer the Hon Gom peninsula.

Communications. The railway between Nha Trang (6.75) and Qui Nhon (6.120) follows the W shore of Baie de Ben Goi and there are stations 1 mile W of the head of Vung Hon Khoi, at Van Ninh and at Tu Bong (6.89).

BAIE DE BEN GOI TO CAP VARELLA

Mui Ganh to Vung Ro

6.93

Between Mui Ganh (6.83) (12° 34′ N, 109° 26′ E) and Mui Doi, 5½ miles NNE, the coast of the Hon Gom peninsula is indented, with rocks above and below water lying close offshore in places.

Hon Trau Nam, a group of eight rocks 6 m (20 ft) high, lies 1½ miles E of Mui Ganh. **Roche Fortin,** with a depth of 2·7 m (9 ft) over it, lies close NW of Hon Trau Nam.

Hon Kho Tran lies 2¼ miles NNE of Mui Ganh and 6 cables offshore.

Mui Doi (12° 39′ N, 109° 28′ E) is the SE extremity of a hilly peninsula. **Hon Doi,** 55 m (181 ft) high, is separated from Mui Doi by a channel 3 cables wide. Vessels are recommended not to use this channel.

Mui Da Chon lies 1¼ miles NNW of Mui Doi.

6.94

A small bay is entered ½ mile W of Mui Da Chon; an above-water rock lies 1 cable N of the E entrance point of the bay, and a rocky ledge with a depth of 5·2 m (17 ft) over it, extends 1½ cables NE from its W entrance point. Between the latter point and **Mui Hon Ngang,** the extremity of a small peninsula 2½ miles NW, there is a sandy bay, the S shore of which is cliffy and indented. An above-water rock, with another rock which dries

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1·2 m (4 ft) close E of it, lies in this bay 1¾ miles WNW of Mui Da Chon and ¼ mile offshore.

The narrow isthmus connecting the Hon Gom peninsula with the mainland extends 6½ miles NNW from Mui Hon Ngang. It is bordered by a sandy beach on its seaward side, and the islands in Baie de Ben Goi can be seen over this isthmus.

Chart 3883

6.95

Hon Giom (12° 49′ N, 109° 22′ E) is a small peninsula connected to the coast by a narrow neck of low land. The coast is low for 1¼ miles N of Hon Giom, thence it becomes steep and cliffy. **Dai Lanh** village stands 1¼ miles NNW of Hon Giom and a short distance inland.

Hon Nua, 142 m (466 ft) high, lies 1¾ miles NE of Hon Giom and 6 cables offshore. Hon Nua is bordered by perpendicular cliffs on its E side which is steep-to; on its W side there is a shingle beach and a fishing village.

Anchorage during the SW Monsoon or in good weather, may be obtained off Dai Lanh, W of Hon Nua.

Vung Ro

6.96

Vung Ro is entered between **Mui La,** 1¾ miles NE of Hon Nua and a point 1¼ miles WNW. It is one of the safest anchorages on the coast of central Vietnam, and is frequented by junks in bad weather. The shores of Vung Ro are backed by high land; reefs extend a short distance from two of the salient points on the W shore. The E side of the bay is formed by the peninsula extending S and W from Cap Varella.

A **tanker mooring berth,** consisting of four mooring buoys, lies in the entrance to Vung Ro; the berth is orientated in an ESE direction and has a least depth of 12·8 m (42 ft). A pier, 180 m in length with depths of 7·9 to 11·5 m (26 to 38 ft) alongside, extends in a SSE direction from the N side of Vung Ro, 2 miles NNE of Hon Nua; the root of the pier consists of a girder span connected to a rocky causeway. A pontoon pier and two ramps are situated in the vicinity of the pier.

6.97

Cap Varella consists of steep cliffs rising to four rocky peaks, three of which are on the peninsula forming the E side of Vung Ro. **Mui Ba,** the SE extremity of the cape, lies 2 miles ENE of Mui La. Between Mui Ba and a point 2¼ miles N, there are two small bays, separated from one another by **Mui Mao.** Thence to **Mui Nay,** 1 mile N, there is a small bay with a sandy beach, into which a stream discharges from the mountains.

Nui Da Bia, the summit of Cap Varella, 699 m (2293 ft) high, lies 3¾ miles NW of Mui Mao; on the summit is a prominent rock, resembling a pagoda. See view 5.

Cap Varella Lighthouse (12° 54′ N, 109° 28′ E) is a white masonry tower, 17 m in height, situated on Mui Ke Ga, 2¼ miles N of Mui Ba.

There is a **signal station** at Cap Varella, with which vessels can communicate by means of the *International Code of Signals* either by day or at night.

Storm signals are displayed.

Chart 3987

6.98

Dumping grounds. Dumping grounds for explosives lie 24 miles ENE of Cap Varella within a circle of radius 5 miles and 77 miles ENE of the same point within a circle of radius 13 miles.

CAP VARELLA TO BAIE DE VUNG CHAO

Charts 3987, 3988

Cap Varella to Mui Ganh Den

6.99

Between Mui Nay (12° 55′ N, 109° 27′ E), 1 mile N of Cap Varella, and **Nui Bai Gok,** a hill on the coast 2¼ miles NW, there is a bay with a sandy beach. Anchorage may be obtained off this bay with Nui Da Bia (6.97) bearing 233° in a depth of 18 m (59 ft).

Hon Co, a group of rocks, some of which are awash, lies 1½ miles NNE of Nui Bai Gok and the same distance offshore. **Roche Percée,** the highest with an elevation of 8 m (60 ft), lies at the SE end of the group and has a large boulder on its summit: when abreast of it, a hole can be seen through the boulder.

With the exception of Hon Co, Cap Varella can be approached with safety.

6.100

Cua Da Nong, the entrance to a lagoon which connects with **Song Ban Thach,** is situated 1¾ miles W of Hon Co. The coast N from here consists of low sand-dunes behind which is a wide plain.

Cua Dai Giang (13° 05′ N, 109° 20′ E) lies 13¼ miles NW of Cap Varella and is accessible by junks. A pagoda stands on a mound on its N entrance point, with a tower at **Tuy Hoa (Thuy Hoa)** village, 1½ miles W. Both entrance points are foul and the bar is subject to change.

Anchorage may be obtained by vessels with local knowledge off Cua Dai Giang in depths of 16 m (52 ft), but the winds are fairly strong during the greater part of the year.

Between Cua Dai Giang and Mui Lang (6.101), 15½ miles N, the coast is chiefly low and sandy interspersed with rocky points and sand-hills, and with a few islets lying a short distance offshore. The plain within is well cultivated and is backed by a range of mountains, the most prominent of which are **Nui Chap Chai,** 390 m (1279 ft) high, situated 4¼ miles NW of Cua Dai Giang, and **Nui Hon Chuong,** 560 m (1836 ft) high, 6½ miles farther NW.

Îles Bai Ma Lieng lie on a shallow rocky bank, which extends 2 miles SE from a rocky promontory situated 6¾ miles NNW of Cua Dai Giang. **Lao Dua,** 14 m (45 ft) high, lies near the outer end of the bank; some rocks, above-water, lie close off the S side of this islet, and other rocks with depths of 5 m (16 ft) and less, lie ½ mile SE of it. **Lao Chua** (13° 11′ N, 109° 18′ E), 37 m (120 ft) high, bare and brown coloured except during the NE Monsoon when there is a little verdure, lies midway between Lao Dua and the rocky point.

Phu Phong is a village situated in a clump of coconut trees W of the rocky point mentioned above.

Anchorage may be obtained during the SW Monsoon by vessels with local knowledge SW of Lao Chua. During the NE Monsoon some shelter is given by Îles Bai Ma Lieng, but vessels are recommended not to anchor there in that season.

6.101

Le Bonnet (13° 13′·5 N, 109° 18′·5 E), a black islet 68 m (223 ft) high, lies close to the coast 2¾ miles N of Îles Bai Ma Lieng, and is connected by a reef to a projection which separates the sandy beaches on the coast.

Chart 3874

Le Trapeze (13° 15′ N, 109° 19′ E), a prominent black rocky point 113 m (370 ft) high, lies 5 miles N of Îles Bai Ma Lieng. A reef, which is steep-to and on which there is a rock 1 m (3 ft) high, lies from 2 to 3 cables E of Le Trapeze.

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Cu Lao Ma Nha, a wooded island 119 m (390 ft) high, lies 1¼ miles NE of Le Trapeze and 1¼ miles offshore. It is uninhabited, but frequented by fishermen from the neighbouring coast. The channel between Cu Lao Ma Nha and the mainland is reduced to a width of 5½ cables by reefs and rocky ledges on both sides, and during the summer months this channel is blocked by fishing nets.

The entrance to **O Lang Dam,** a shallow lagoon, is entered 2¼ miles WNW of Cu Lao Ma Nha; it is only suitable for boats.

Tidal streams in the entrance to O Lang Dam may attain a rate of 2 to 3 knots on the falling tide, and is fastest at half-tide. The in-going rising stream is weaker.

Mui Lang (13° 20′ N, 109° 18′ E) is a black rocky bluff, bordered by a coral reef and isolated rocks, situated 3½ miles NW of Cu Lao Ma Nha. **Phu Son,** a village situated in a small bay ½ mile W of Mui Lang, has a considerable coasting trade with ports in Kwangtung. There are numerous pagodas on this coast, and **Nui Cot Qui (Cot Cat),** a table-topped hill 101 m (330 ft) high, close N of Phu Son, assists in identifying the bay where vessels with local knowledge may obtain anchorage.

6.102

Mui Ganh Den, 77 m (252 ft) high and cultivated, lies 1¾ miles N of Mui Lang. **Vung Chao** is a small bay midway between these two points, and the coast on either side of the bay is bordered by detached rocks. A rocky ledge, with a depth of 5·2 m (17 ft) over it at its outer end, extends ½ mile W from the N end of Mui Lang.

Roche de l'Illissus, with a depth of 1·8 m (6 ft) over it, lies in the S approach to Vung Xuan Dai, 1½ miles SE of Mui Ganh Den. The NW extremity of Cu Lao Xanh (6.117), bearing 001° and just open E of Mui Ong Dien (6.113), leads E of Roche de l'Illissus; the SW extremity of Lao Ong Xa (6.106), bearing 296° and open NE of Mui Ganh Den leads NE of it.

BAIE DE VUNG CHAO

Approaches to Baie de Vung Chao

6.103

Baie de Vung Chao, one of the most sheltered bays on the coast of Vietnam, but in which the depths are not greater than 8·2 m (27 ft), is approached through **Vung Xuan Dai (Baie de Xuan Day).** The latter is entered between Mui Ganh Den (6.102) (13° 22′ N, 109° 17′ E) and Mui Luoi Cay, 2½ miles N, the S extremity of a peninsula which forms the E side of Baie de Vung Chao. The entrance of Vung Xuan Dai can be distinguished by the peaks on this peninsula, the high cliffs of Mui Ong Dien (6.113), 4 miles NNE of Mui Luoi Cay, and the hills round Mui Vung Trich, 2¾ miles NNW of Mui Ong Dien. Of the three peaks on the S end of the peninsula, **Vung Nie,** the SW peak, is conical and 242 m (794 ft, charted as 851 ft) high and another 2 miles ENE of Vung Nie is 357 m (1172 ft) high. See view 5.

The country around is cultivated. Numerous villages, surrounded by coconut trees, stand on the shores which are backed by high ranges of hills.

Vung Xuan Dai

6.104

Mui Da Tau lies 1½ miles W of Mui Ganh Den.

Hon Yen (13° 23′ N, 109° 17′ E), 47 m (155 ft) high formed of jagged red rocks, lies in the entrance to Vung Xuan Dai, 1¼ miles NW of Mui Ganh Den. **Roche de l'Octant,** with a depth of 1·5 m (5 ft) over it, lies 6 cables WSW of Hon Yen.

Song Cau is entered at the head of a small bay close W of Mui Da Tau. The river mouth is narrow and is obstructed by a bar with depths of 0·6 to 3·0 m (2 to 10 ft) over it; it is only suitable for boats. The W entrance point of the river is the SE end of a sandy spit extending from the sand-hills which form the W side of Vung Xuan Dai as far as **Mui Ganh Do,** 2 miles NW of Mui Da Tau.

There is a custom house at Mui Ganh Do.

6.105

Anchorage may be obtained during the SW Monsoon N of Mui Da Tau, with the mouth of Song Cai bearing 165° and Hon Yen 070°, in a depth of 11 m (36 ft). When approaching this anchorage, pass S of Hon Yen, taking care to avoid Roche de l'Octant.

Tidal streams in the entrance to Vung Xuan Dai flow W on the rising tide and attain a rate of 1½ knots.

Mui Luoi Cay (13° 24′ N, 109° 18′ E), on the N side of Vung Xuan Dai, is a perpendicular cliff 68 m (228 ft) high. **Vung La** is a shallow bay which is entered ½ mile NW of Mui Luoi Cay; **Hon Mot** lies close off the NW entrance of this bay, and N of Hon Mot there is a cove. A village stands on the E shore of the bay.

Good **anchorage** can be obtained off Vung La during NE Monsoon, 2 cables W of the E entrance point in depths from 12 to 15 m (39 to 49 ft), mud.

Between Hon Mot and **Mui Ganh Tuong,** 1¼ miles W there are a few above-water rocks lying close offshore. **Roche Bouée,** ½ m (2 ft) high and steep-to, lies on the N side of the fairway 4 cables W of Mui Ganh Tuong.

Vung Chua, a small bay, lies ½ mile NNW of Mui Ganh Tuong, and **Dong Tranh** lies ½ mile farther NNW.

6.106

Lao Ong Xa (13° 24′ N, 109° 14′ E), 52 m (172 ft) high and grey in colour, lies 4 cables N of Mui Ganh Do, near the NE extremity of a ledge of foul ground which extends from the S side of Vung Lam.

Anchorage may be obtained ½ mile NW of Lao Ong Xa in a depth of 9 m (30 ft), mud. When making this anchorage from E, care must be taken to avoid **Roche du Volga** with a depth of 4·0 m (13 ft) over it, situated in the middle of the channel ½ mile NNE of Lao Ong Xa, and the rocks lying close off the NE end of that island.

6.107

Vung Lam, a shallow bay on the W side of Vung Xuan Dai, is entered between Mui Ganh Do (13° 23′ N, 109° 14′ E) (6.104) and **Mui Rung,** 1¼ miles WNW.

6.108

Mui Da Mai lies 1 mile N of Mui Rung.

Between Mui Da Mai and **Mui Mu U,** 1 mile NNE, there is a bay, in the middle of which is **Hon Nhut Tu** which is connected to the coast by a drying bank 2 cables wide, dividing the bay into two parts.

Baie de Vung Chao

6.109

Baie de Vung Chao is entered between Dong Tranh (6.105) and Mui Mu U (13° 26′ N, 109° 14′ E) 1¼ miles W, and is only suitable for vessels of moderate draught, the depths over a considerable area of the bay being from 5 to 7 m (16 to 23 ft); a bank with depths of less than 5 m (16 ft) over it extends 1 mile from the W shore.

6.110

Vung Chao village stands on the SE side of a bay of the same name which is entered between Mui Co Co and a point ¾ mile N.

Hon Lo Dam Nai, a detached coral patch which dries 0·6 m (2 ft), lies ¾ mile NW of Mui Co Co. **Hon Do,**

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25 m (83 ft) high, lies on the outer edge of this reef, 2 miles NW of Hon Lo Dam Nai.

Vung Quan So and **Vung Bun,** shallow bays divided from one another by a small peninsula on which there is a custom house, lie in the N part of Baie de Vung Chao.

6.111

Song Cau stands on the W side of Baie de Vung Chao, on the N side of the mouth of a river of the same name; it is the chief town of the province of Phu Yen.

Hon Lo Dam Ca, a coral patch which dries 1·5 m (5 ft), lies in the middle of the bay 1¼ miles E of Song Cau.

6.112

Directions for approaching Baie de Vung Chao. After passing Roche de l'Illissus (6.102) steer a N course until Mui Da Mai (6.107) bears 295°, when course should be altered to maintain this bearing, passing ½ mile NE of Hon Yen. When the SW extremity of Hon Yen is in line with the E fall of the cliffs of Mui Ganh Den (not the E extremity of that point, as this varies with the height of the tide), bearing 141°, alter course to maintain this bearing astern, which will lead midway between Roche du Volga and Roche Bouée. When clear of these two dangers, alter course to the N as convenient to pass midway between Mui Mu U and Dong Tranh and thence to the anchorage in Baie de Vung Chao.

Anchorage may be obtained off Song Cau with the town bearing between 280° and 300° in depths of 5 to 6 m (16 to 20 ft), mud; or midway between Hon Lo Dam Ca and Mui Co Co, where the depths are greater.

Facilities. There are no facilities for berthing ships or unloading cargo. Boats can land on the beach in front of Song Cau.

Supplies. Small quantities of fresh provisions can be obtained at Song Cau.

BAIE DE VUNG CHAO TO VUNG QUI-HNON

Mui Luoi Cay to Baie de Cu Mong

6.113

Between Mui Luoi Cay (13° 24′ N, 109° 18′ E) (6.105) and **Hon Tai Ma,** ¾ mile NE, there are two small bays separated by a black bluff.

Hon Chai lies 2 miles NNE of Hon Tai Ma; a few rocks, some of which dry, lie close off the coast in places between these two points.

Vung Mo O is entered between Hon Chai and the S end of a hilly peninsula, of which **Mui Ong Dien (Mui Mo O)** is the NE extremity. This peninsula is connected to the mainland by a sandy isthmus and has two peaks, each 199 m (654 ft) high.

Temporary **anchorage** may be found in Vung Mo O during the NE Monsoon, but it is not recommended as the swell is felt, the depths decrease rapidly, and the holding ground is bad.

Between this peninsula and Mui Vung Trich 2¼ miles NNW, there is a sandy bay backed by sand-hills about 40 m high, with a table-topped hill above them which is cultivated. **Colline Verte** (13° 30′ N, 109° 17′ E), a hill which has a notch on its rocky summit, 156 m (513 ft) high, lies 1¼ miles SW of Mui Vung Trich and a short distance inland. The S end of the bay is named **Vung Quan** and the N end **Vung Trich.**

Anchorage may be obtained in Vung Trich during the SW Monsoon between 2 and 3 cables offshore in depths of 5 to 9 m (16 to 30 ft).

Mui Vung Trich is the S end of a peninsula, 113 m (372 ft) high, joined to the mainland by a narrow isthmus of sand. **Mep Cua Duoi,** the N end of this peninsula, lies 1½ miles NNW of Mui Vung Trich; the E side of the peninsula is bordered by rocks lying close offshore, and rocks extending ½ cable from Mep Cua Duoi.

6.114

Spare.

Baie de Cu Mong

6.115

Baie de Cu Mong is entered between Mep Cua Duoi (13° 32′ N, 109° 17′ E) (6.113) and **Mep Cua Tren,** ¼ mile W. Rocks, both above and below-water, the outermost of which dries 0·6 m (2 ft), extend 1 cable ESE from Mep Cua Tren. A bank, with depths of 2·7 m (9 ft) over it, extends ½ cable from the E side of the entrance, leaving a channel ¾ cable wide. There are depths of 11·0 m (36 ft) in the entrance, becoming less a short distance within. The shores of the bay are densely populated and bordered by coconut trees.

The village of **Vinh Hoa** stands in a group of palms on the isthmus joining the Mui Vung Trich peninsula to the mainland. During a typhoon, in 1924, a breach 1 cable wide with a depth of 1·5 m (5 ft) over it, was made in this isthmus, rendering the anchorage inside unsafe at that time.

On the W side of Baie de Cu Mong there is a small bay with a sandy beach.

Mieu Cong Than (Hon Nan) lies near the middle of the bay 1¼ miles WSW of Mep Cua Duoi on the outer edge of a shallow bank extending ½ mile from the NE shore N of Mieu Cong Than. There is a custom house on the NE shore, N of Mieu Cong Than.

The NW part of the bay is shallow, and in places, dries as much as 0·9 m (3 ft).

The N end of Baie de Cu Mong leads into a large lagoon which is only suitable for small craft with local knowledge.

Directions for Baie de Cu Mong. When approaching this bay steer with the notch on Colline Verte (6.123), bearing 187°, until the rocks SE of Mep Cua Tren have been passed; course can then be altered for the anchorage. The flow at times sets strongly in a SE direction across the entrance.

Good **anchorage** for small vessels can be obtained in Baie de Cu Mong, 7 cables SSW of Mep Cua Tren, in a depth of 5 m (16 ft), mud.

Baie de Cu Mong to Vung Qui-Nhon

6.116

Between Mep Cua Tren and Mui Ke Ga (13° 34′ N, 109° 18′ E), 2½ miles NNE, there is a bay, the shores of which are composed of sandy beaches, separated by hilly promontories.

Mui Ke Ga, which rises to an elevation of 109 m (356 ft) a short distance inland, is the SE extremity of a small peninsula, connected to the mainland by a low isthmus ¼ mile wide; **Mui Vung Mu,** the NW extremity of the peninsula, lies ¾ mile from Mui Ke Ga.

Hon Kho lies 1¼ cables N of Mui Vung Mu, with rocks, both above and below water, extending 1 cable farther N.

The village of **Tuy Lang** is situated at the head of **Vung Mu,** the small bay on the N side of the peninsula. **Anchorage** may be obtained N of Vung Mu in a depth of 18 m (59 ft); Hon Kho should be given a wide berth when approaching this anchorage.

The coast for a distance of 5½ miles NW of Mui Vung Mu consists of sand-hills forming the E side of the lagoon which extends N of Baie de Cu Mong. **Nui Yen**

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Beo, 335 m (1100 ft) high and having a conical summit, lies 3½ miles W of Mui Ke Ga (13° 34′ N, 109° 18′ E).

Off-lying island and dangers

6.117

Cu Lao Xanh (Pulau Gambir) (13° 37′ N, 109° 21′ E), with two summits, the tops of which are bare, lies 4 miles NE of Mui Ke Ga. The NW hill is 130 m (425 ft) high.

A **light** is exhibited from a black truncated tower with white bands, 16 m in height, situated on the E summit of Cu Lao Xanh.

A rock, with a depth of less than 0·3 m (1 ft) over it, lies 6½ cables W of the S extremity of the island.

There is a small bay on the SW side of the island at the head of which is the village of **Tanh Chau. Anchorage** may be obtained off the entrance to this bay in a depth of 13 m (43 ft), 4 cables W of the S extremity of Cu Lao Xanh.

Mined area. An area between Cu Lao Xanh and the mainland is dangerous due to mines. See 1.5 and Appendix I.

6.118

Les Mamelles, two sharp-peaked rocks, one of which is 37 m (123 ft) high, lies ¾ mile SSE of Cu Lao Xanh. Another rock lies close S of Les Mamelles.

Banc de Pâques, composed of coral, with a least depth of 7·6 m (25 ft) over it, lies 2 miles W of the S extremity of Cu Lao Xanh; there is a clear passage on either side of this bank.

6.119

Tidal streams in the vicinity of Cu Lao Xanh. The stream usually flows S and follows the 100 m (55 fm) line. It ceases only after periods of fresh S winds. The island causes the general S-going flow to divide. The W branch sets a rate of 1½ to 2 knots through the channel between Banc de Pâques and Cu Lao Xanh; off Mui Luoi Cay (6.113), 12 miles S, it turns W and N along the coast to Hon Dat (6.120), 8 miles NW of Cu Lao Xanh, at a gradually diminishing rate.

VUNG QUI-NHON

Chart 264

Approaches to Qui-Nhon

6.120

Hon Dat (13° 41′ N, 109° 15′ E), 74 m (244 ft) high and covered with brushwood, lies on the W side of the approach and 1 mile offshore. **Hon Roi,** 56 m (185 ft) high and connected to the mainland by a shallow ridge, lies 6 cables W of Hon Dat, the channel between them being obstructed by a reef on which one of the rocks is 6 m (19 ft) high.

Anchorage may be obtained by vessels with local knowledge NW of Hon Dat in depths of 11 to 15 m (36 to 49 ft).

Rochers du Crabe, 5 m (18 ft) high, lie ½ mile N of Hon Roi.

Between a point on the mainland, 2¼ miles S of Hon Roi and a point 4 miles farther N, the coast is steep and mountainous. For about 1 mile N of the last mentioned point, the coast consists of a sandy beach backed by sand-hills. Close N of these sand-hills, there is a hill, 237 m (779 ft) high, 3½ cables inland; thence to **Pointe de Gia,** the N entrance point to Vung Qui-Nhon, there is a bay the shore of which is low and sandy. The town of Qui-Nhon (6.126) stands on a sandspit which forms the N shore of this bay.

Nui Deo Son, 284 m (933 ft) high, lies 2½ miles WNW of Pointe de Gia (13° 46′ N, 109° 15′ E). A tower, from which an aero light is exhibited, is situated 1¾ miles W of Pointe de Gia, and a TV tower, marked by air obstruction lights, is situated 2·1 miles farther SW.

6.121

On the E side of the approach to Vung Qui-Nhon, **Mui Yen** (13° 45′ N, 109° 17′ E), a rocky bluff at the S end of Bandao Phuoc Mai, lies 2½ miles ESE of Pointe de Gia.

Hon Kho, with a depth of 7·0 m (23 ft) over it, lies 2½ miles SSE of Mui Yen (chart 3874).

The S end of **Bandao Phuoc Mai** is mountainous and **Nui Dau Goc Let,** 315 m (1035 ft) high, the highest peak on this part of the peninsula, lies 1½ miles NW of Nui Mui Yen.

Baie de Lang Mai, the NW shore of which consists of a sandy beach backed by sand-hills, lies between Mui Yen and a point 1 mile W; **Pointe Sud,** the S entrance point of Vung Qui-Nhon, lies 1¼ miles farther W.

Pointe Sud Light-structure is a white metal framework tower, 6 m in height, situated on the point. There is a signal station at Pointe Sud, where there is a port radio station and storms signals are displayed.

Anchorage, outside Vung Qui-Nhon, may be obtained E of the alignment of the leading light-structures, see below, with Mui Yen bearing 086° and Pointe Sud bearing 360° or less, in a depth of 7 m (23 ft) with good holding ground. This anchorage is not recommended when the NE Monsoon is strong as a swell is felt.

Vung Qui-Nhon

6.122

Vung Qui-Nhon, entered between Pointe Sud and Pointe de Gia, lies W of Bandao Phuoc Mai. The channel through its entrance is only 1 cable wide, but the bay forms a secure anchorage for vessels that can cross the bar.

A dredged channel, marked by leading lights, light-beacons, light-buoys and buoys leads to and across the bar into the harbour NE of Pointe de Gia. In 1968, the port was able to accommodate vessels of up to 9 m (30 ft) draught; in 1970 the main channel in the approach and across the bar, and a large part of the inner harbour including a turning basin had been dredged to 9·4 m (31 ft).

A channel, dredged to a depth of 4·9 m (16 ft) leads to three jetties, 3 cables E of the main channel.

A light-buoy (conical; black and white stripes; light group flashing white showing Morse code A) is moored at the seaward end of the dredged channel, 1 mile S of Pointe Sud.

Leading lights are exhibited from white rectangular daymarks with black stripes standing 3½ cables NW and 2½ cables W of Pointe Sud. In line bearing 348°, they lead through the dredged approach channel and across the bar.

No 1 Light-beacon (black triangular daymark with green border; green reflector) is situated 3 cables SW of Pointe Sud, and No 2 Light-beacon (red square daymark; red reflector) 3 cables SW of the same point.

A rock, with a depth of 4·0 m (13 ft) over it, lies on the E side of the channel 1 cable W of Pointe Sud, and is

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marked by No 1 Buoy (black conical) moored close N of the rock.

No 5 Light-beacon (white triangular daymark with green border; green reflector) and No 7 Light-beacon stand, respectively, 4 cables NE and 7 cables NNE of Pointe Sud on the E side of the dredged channel.

Bai Tai Light is exhibited from a beacon situated 5½ cables NNE of Pointe de Gia.

6.123

Tidal streams. The general S-going stream, after passing Cu Lao Hon Kho (6.127) sends a branch SW towards Hon Roi and Hon Dat (6.120). On the rising tide, this branch first turns N, and then NE along the W shore of the bay, attaining a rate of ¾ to 1 knot, and finally sets ENE across the bar into Vung Qui-Nhon. On the falling tide, the stream running out of Vung Qui-Nhon sets WSW across the bar and then S parallel to the shore.

During the rainy season, which is also the typhoon season, the stream setting out from Vung Qui-Nhon is strong. The stream in either direction across the bar attains a rate of 2 knots with large tides and 1½ knots with small tides. With large tides this rate is reached 6 hours after high and low water locally. The stream changes direction 2 hours after high and low water locally. Inside the bar, the stream generally follows the channel, but in the curves of the channel and off the points, difficult eddies may be found.

A **tide-gauge** is situated on the E side of the harbour, 1 cable S of the rear leading light-beacon on a small white hut which shows up prominently.

6.124

Delong Pier, situated 7 cables NNW of Pointe de Gia, provides four berths, the two outer ones having a depth of 8·8 m (29 ft) alongside. Cargo is discharged to the pier or into barges. In addition to this pier, there are four mooring buoys in the vicinity where vessels can discharge. Vessels using the buoys usually drop both anchors and secure the stern to a buoy. In 1968, **pilotage** was compulsory for vessels using Delong Pier or the buoys.

Two stone and rubble moles, with jetties at their heads, are situated 2 cables N of Pointe de Gia. The SE jetty is in bad condition, but the NW of the two jetties has a concrete pier at its head which provides a berth for one vessel with a depth of 4·9 m alongside. During the NE Monsoon vessels are sometimes unable to leave this jetty for several days.

6.125

Farther in almost the whole of Vung Qui-Nhon is shallow with drying banks extending in places from its shores. Numerous streams discharge into the W side of the bay. **Les Sept Îlots** lie in the middle of the bay 1¾ miles NNW of Pointe de Gia.

6.126

Qui-Nhon town, which had a population of 40 000 in 1968, is the principal town of the province of Binh Dinh.

Facilities. Three tugs are available to assist in berthing. A 100-ton floating crane, numerous barges and small craft are available. Cargo working at the buoys during the NE Monsoon is only carried out before noon as it usually blows too hard for this to be done in the afternoon.

There is a hospital at Qui-Nhon.

Deratting exemption certificates can be issued: see 1.92.

Supplies. Provisions are plentiful, but other stores, supplies and fuel are not normally available.

Communications. There is regular communication by sea with Ho Chi Minh City and Da Nang.

There is a port radio station.

VUNG QUI-NHON TO VUNG DA NANG

Chart 3874

Mui Yen to Vung Moi

6.127

Cu Lao (Culao) Hon Kho (13° 46′ N, 109° 18′ E), connected to the coast by a reef, lies ¾ mile NE of Mui Yen (6.121).

Between Mui Yen and a rocky promontory 95 m (313 ft) high, 8½ miles N, the coast is steep and mountainous. There is a conspicuous gap between two hills, 165 and 140 m (543 and 461 ft) high, respectively, situated 3½ miles N of Mui Yen. **Nui Den,** the summit of Bandao Phuoc Mai and 360 m (1182 ft) high, lies 2¼ miles N of this gap.

Nghiem Kinh Chieu, an islet 54 m (178 ft) high, with another islet close N of it, lies ¼ mile off the coast and 7 miles N of Chu Lao Hon Kho.

Nui Ong Co, 53 m (174 ft, charted as 316 ft) high, is a precipitous pyramidal rock lying 8½ miles NNE of Cu Lao Hon Kho. **Nui Ong Can** is a group of three islets and some above-water rocks, lying 1¾ miles E of Nui Ong Co (13° 54′ N, 109° 19′ E). The SW islet is 37 m high and the NE islet 34 m (112 ft, charted as 251 ft) high.

6.128

Tidal streams near Cu Lao Hon Kho set W on a rising tide and attain a rate of 1½ knots. To the N the flow is generally S-going except during the SW Monsoon when it is weak and irregular. Between Nui Ong Co and the mainland the average rate is about 1 knot.

Charts 3874, 3988

6.129

Between the N end of the 95 m (313 ft) promontory (13° 54′ N, 109° 17′ E) and another rocky promontory, 62 m (203 ft) high, 4½ miles NNW, there is a bay, the shore of which is backed by sand-hills. The village of **Hung Luong** stands at the S end of this bay.

Anchorage may be obtained by vessels with local knowledge off Hung Luong during S winds.

Chart 3988

Le Cône, a prominent hill on the coast 218 m (716 ft) high, lies 1½ miles N of the rocky promontory, midway between two small bays. **Thanh Hi** (14° 01′ N, 109° 15′ E), the N entrance point of the N of these two bays, is 188 m (618 ft) high, and lies 1½ miles N of Le Cône. Further inland **Hon Heo,** the summit of which is 668 m (2193 ft) high and flat with an isolated rock on it, lies 3 miles W of Thanh Hi. **Nui Ba,** 891 m (2925 ft) high, also with an isolated rock on it lies 5 miles WNW of Hon Heo.

6.130

Nuoc Ngot, a steep promontory 159 m (523 ft) high, with several red granite peaks rendered prominent by patches of sand on their slopes, lies 7 miles N of Thanh Hi. This promontory is the S end of a peninsula which forms the E side of **Dam Nuoc Ngot** and the entrance to which is at the S end of the peninsula. The village of **Degi,** where there is a custom house, stands on the S side of the entrance, and **Vinh Loi** is on the N side.

Anchorage may be obtained by vessels with local knowledge in the bay S of Nuoc Ngot (14° 08′ N, 109° 13′ E) in depths of 15 to 18 m (49 to 59 ft).

6.131

The coast N of Nuoc Ngot is low and backed by sand-hills. **Hon Trau (Île Buffle)** is a barren granite islet, 31 m (103 ft) high, lying 3¾ miles E of Nuoc Ngot. Two above-water rocks lie 2 cables E of Hon Trau, with a

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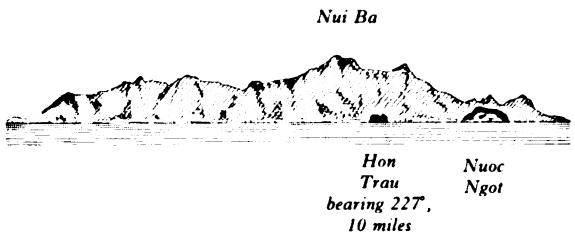

Nuoc Ngot from NE
(Original dated 1933)

rock on which the sea breaks between them and the islet.

Vung Moi (14° 13′ N, 109° 11′ E), a small bay in which there is a village lies close W of a steep cliff situated 6 miles N of Nuoc Ngot.

Vung Moi Lighthouse is a white house, 6 m in height, situated on the coast 1½ miles N of the N entrance point of Vung Moi. Two peaks, the E of which is **Nui Nhiao (Nui Trop Tri),** 604 m (1983 ft) high with a rounded summit, lie 5 miles WSW of the lighthouse.

A ridge extends ¾ mile E from the N end of the steep cliff just mentioned. **Île Nuoc,** 45 m (149 ft) high with two peaks, is the largest and NE of a group of black rocky islets lying on this ridge; there are several above-water rocks between the islet and the mainland. **Rocher Plat,** which dries 2·1 m (7 ft) at its outer end, lies on the same ridge 1 mile S of Île Nuoc.

Good **anchorage** for vessels with local knowledge may be obtained during the SW Monsoon under the lee of the Nuoc group of islets in depths of 15 m (49 ft). When making this anchorage pass 1 mile N of Île Nuoc in order to avoid the dangers off it.

Vung Moi to Cap Sa Hoi

6.132

There is a rocky point, 51 m (169 ft) high, 2 miles N of Vung Moi Lighthouse. Between this point and the village of **Phu Tu,** 7 miles NNW, the coast consists of a sandy beach backed by sand-hills, close inland of which is a lake, **Dam Tra O.**

Île Tortue, a black islet 10 m (32 ft) high with a reef extending a short distance from its E side, lies 6½ miles N of Vung Moi Lighthouse and 3½ miles offshore.

Pointe An Yo (14° 27′ N, 109° 07′ E), 12½ miles NNW of Vung Moi Lighthouse, is the N of two rocky spurs which extend from a chain of mountains, the summit of which is **Cay-Giep (Nui Chop Chai),** 651 m (2137 ft) high, situated 5 miles SSW of the point.

6.133

Between Pointe An Yo and Pointe de Kim Bong, 8½ miles NNW, the coast is sandy. **Song Lai Giang** discharges through **Lagune d'An Gai,** near which is a village surrounded by palm trees, 4 miles NNW of Pointe An Yo. **Nui Kho,** which has a red summit 223 m (733 ft) high, lies 4 miles NW of Pointe An Yo and 2 miles inland.

Anchorage may be obtained by vessels with local knowledge off the mouth of Song Lai Giang in depths of 13 to 15 m (43 to 49 ft), sand.

Song Tam Quan, which has a narrow mouth, is situated ½ mile W of **Pointe de Kim Bong** (14° 34′ N, 109° 05′ E). A bank, with depths of less than 0·3 m (1 ft) over it, extends ¼ mile E from the S entrance point of the river. On the N side of the entrance, there is a pagoda standing on a low hill. Between the pagoda and Pointe de Kim Bong there is a small bay. A bank, with a depth of 6·4 m (21 ft) over it, lies ¼ mile S of the point, and shoals with depths of 4·6 and 4·9 m (15 and 16 ft) over them, lie ¾ mile NNE and E, respectively, of the same point. Tam Quan village, surrounded by plantations of coconut palms and areca nuts, stands 1 mile within the entrance of the river; some provisions may be obtained from the village.

Anchorage can be obtained by vessels with local knowledge off the mouth of Song Tam Quan in a depth of 13 m (43 ft), sand and mud. This anchorage is partly sheltered from N winds by Pointe de Kim Bong.

6.134

Between Pointe de Kim Bong and Cap Sa Hoi, 5½ miles N, the coast consists alternately of rocky points and sandy bays. **Can Sa Hoi** (14° 40′ N, 109° 05′ E), 93 m (303 ft) high, is the S end of a peninsula 1 mile long, enclosing a lagoon. There is a custom house on the cape. **Sa Huynh** village stands on the mainland close W of the point.

Cap Sa Hoi to Mui Batangan

6.135

Between Cap Sa Hoi and Mui Batangan, 35 miles N, the coast is backed by sand-hills of which only two are prominent; one, 176 m (579 ft) high, is situated ½ mile S of the N extremity of **Cap Mia,** which lies 10½ miles NNW of Cap Sa Hoi; the other, **Nui Diep,** 64 m (211 ft) high and wooded, lies 13 miles NNW of Cap Mia (14° 49′ N, 108° 59′ E) and 1½ miles inland.

The interior of the country is mountainous; **Nui Da Vach,** the highest peak in this area, rises to an elevation of 1135 m (3724 ft charted as 3572 ft), 15 miles W of Nui Diep.

Song Tra Cau discharges close N of Cap Mia and rocks extend a short distance from the cape.

Song Tra Khuc discharges 2¾ miles N of Rocher Noir. The village of **Quang Ngai** is situated on the S bank of the river 5 miles above its mouth. Between the mouth of this river and the mouth of **Song Cho Moi,** 4 miles NNE, there is a shallow bay.

Mui Batangan (15° 15′ N, 108° 56′ E), 34 m (113 ft) high, is fringed on its N side by a reef and rocks, above and below water, which extend 6 cables offshore. **Rocher Plat,** just above high water, lies 3¼ miles SSE of the N extremity of Mui Batangan and 1¾ miles offshore. An obstruction, possibly a rock, was reported in 1966 to lie 8¼ miles ESE of Rocher Plat.

Vessels should give Mui Batangan a wide berth.

Mui Batangan to Mui Nam Tram

6.136

Between Mui Batangan and **Pointe de Go Nhan,** 6 miles NW, there is a sandy bay. Good anchorage during the SW Monsoon may be obtained by vessels with local knowledge in the S end of this bay, N of Mui Batangan, with the rocks off that point bearing 090° in a depth of 10 m (33 ft), or farther NW in a depth of 12 m (39 ft).

6.137

Vung Nho Na is entered between Pointe de Go Nhan and **Pointe de Phuoc Thien,** 21 m (69 ft) high, 1½ miles NW. The S side of the bay is fringed by a reef which extends 3½ cables offshore, and a bank, with depths of less than 10 m (33 ft) over it, extends ½ mile from the head of the bay. **Anchorage** during the SW Monsoon may be obtained by vessels with local knowledge.

Vung Viet Thanh is entered between Pointe de Phuoc Thien and a point 3½ miles NW. A bank, with depths of less than 10 m (33 ft) over it, extends ½ mile from the SW shore of the bay, and there is a rock, with a depth of 4·6 m (15 ft) over it, lying on the outer edge of this bank ¾ mile W of Pointe de Phuoc Thien, which is

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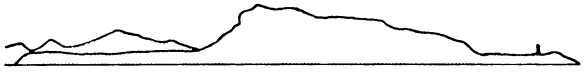
fringed by a reef on its N side extending 1½ cables offshore. **Anchorage** may be obtained by vessels with local knowledge in Vung Viet Thanh during the SW Monsoon.

Mui Nam Tram (Cap Bantan) (15° 25′ N, 108° 49′ E) lies 12 miles NNW of Mui Batangan, and is a hilly projection 141 m (464 ft) high; it forms the E extremity of a small peninsula.

Off-lying islands, banks and dangers

6.138

Cu Lao (Culao) Re (15° 23′ N, 109° 07′ E) lies 12½ miles ENE of Mui Batangan (6.135); it is formed of several craters and peaks which appear isolated when seen at a distance of 25 miles, except on a N bearing when the island has a level aspect. The E and highest peak is 179 m (589 ft) high. A rocky reef, over which there are overfalls, extends 3 miles from the N side of the island. There are some villages on the island, which is well cultivated.



Lighthouse bearing 303°, 7 miles

Cu Lao Re from SE
(Original dated 1933)

A **light** is exhibited from a white metal tower with black bands, situated on the NE extremity of the island.

An airstrip, running in a N–S direction, is situated across the island midway between the light structure and the 179 m (589 ft) summit mentioned above.

Anchorage off Cu Lao Re is bad everywhere, as the bottom is rocky, but temporary anchorage may be obtained S of the 179 m (589 ft) summit; during the SW Monsoon the best anchorage is N of the W peak of the island, where the sea is not felt.

6.139

Banc de Cu Lao Re, over which there is a depth of 33 m (18 fm), lies 5 miles S of Cu Lao Re. Pinnacles, with depths of 46 and 52 m (25 and 28 fm) were reported in 1968 to lie 6 miles SSW of the centre of Banc de Cu Lao Re.

6.140

Cu Lao (Culao) Bo Bai, 33 m (109 ft) high and rocky, lies 2½ miles NNW of Cu Lao Re.

Banc du Volta, with a least depth of 2·1 m (7 ft) over it, and on which the sea frequently breaks, lies 6½ miles NW of Cu Lao Bo Bai (15° 26′ N, 109° 00′ E). The bank is frequented by fishermen during the SW Monsoon.

Banc de Bantan, with a depth of 38 m (21 fm) over it, lies 10 miles W of Cu Lao Bo Bai.

6.141

Dumping grounds for explosives are centred 6½ miles N, 11 miles NNE, 33 miles NE and 80 miles NE of Mui Nam Tram (6.137).

Mui Nam Tram to Song Cua Dai

6.142

Between Mui Nam Tram (15° 25′ N, 108° 45′ E) (6.137) and **Mui Vian Ka,** 1½ miles WNW, there is a bay.

Vung Dung Quat is entered between Mui Vian Ka and Mui An Hoa 9 miles NW. Inland the country is mountainous; **Nui Chua,** 1361 m (4466 ft) high, lies 14 miles SW of Mui An Hoa.

Rocks, one of which dries 0·6 m (2 ft) lies 2½ cables NNW of Mui Vian Ka, and a 4·3 m (14 ft) rocky patch lies 2½ cables NNW of the point.

The mouth of **Song Tra Bong** (15° 23′ N, 108° 46′ E) is situated 2½ miles SSW of Mui Vian Ka; several rocky islets and rocks, both above and below water, lie off its mouth. The village of **Son Tra** where there is a custom house, is situated on the E bank, just within the entrance.

Anchorages. Good anchorage during the SW Monsoon may be obtained SW of Mui Vian Ka; large vessels anchor in a depth of 16 m (52 ft), and small vessels anchor nearer the shore in depths of 5 to 7 m (16 to 23 ft). Vessels can also anchor ¾ mile off the mouth of Song Tra Bong. Vessels drawing 1·8 m (6 ft) can enter Song Tra Bong at high water and anchor off the custom house at Son Tra.

To the NW of the mouth of Song Tra Bong for a distance of 5½ miles the shore of Vung Dung Quat is sandy.

A **pipeline** extends in a NE direction for 2 miles from a position 4¾ miles W of Mui Vian Ka; three mooring buoys lie near the seaward end of the pipeline.

6.143

On the NW side of Vung Dung Quat, **Mui An Hoa** (15° 31′ N, 108° 40′ E), 41 m (136 ft) high, is the N extremity of a projection. **Vung An Hoa** lies between this point and the N end of Chu Lai peninsula 1¼ miles S. The shore of this bay, S of Mui An Hoa, consists of sand-hills and all the N part of the bay is shallow.

The port of **Chu Lai** is situated on the W side of Chu Lai peninsula and is approached by a channel marked by **leading light-beacons** and light-buoys. No 1 Light-buoy (light flashing white every 2½ seconds) is moored ¾ mile NE of the N end of the Chu Lai peninsula, and No 2 Light-buoy (light quick flashing red) 1 cable S of No 1 Light-buoy. These buoys mark the seaward end of the dredged channel across the bar, which in 1970 was dredged to 6·1 m (20 ft).

A prominent dome and a water-tower stand 1 mile S of the S entrance point to Vung An Hoa and a prominent radio tower, marked by air obstruction lights, stands on the point itself.

Pilotage is available 24 hours of the day.

6.144

A ledge of rocks with a depth of 1·8 m (6 ft) over it, lies 1 mile WNW of Mui An Hoa (15° 31′ N, 108° 40′ E) and another ledge, with a depth of less than 0·3 m (1 ft) over it, lies ½ mile W of the same point. The sea sometimes breaks on these ledges.

Between Mui An Hoa and the mouth of Truong Giang, 3½ miles W, there is a small bay. **Truong Giang** runs parallel with the shore for some distance NW and eventually connects with Song Cua Dai (6.151) 26 miles NW. Several villages are situated along the coast between them.

In the interior are several high mountain ranges; **Hon Nui Tau** 952 m (3122 ft) high, lies 31 miles NW of Mui Nam Tram (6.137).

Chart 3884

Off-lying islands and dangers

6.145

Hon Ong (15° 49′ N, 108° 41′ E), about 200 m (656 ft, charted as 461 ft) high and steep-to, lies 18 miles N of Mui An Hoa (6.143) and 14 miles offshore.

6.146

Cu Lao Cham, the largest of a group of islands lying 5 miles offshore, is 517 m (1698 ft) high, inhabited and cultivated, and lies 11 miles NW of Hon Ong. The NE

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point of the island gives excellent radar response at 40 miles.

A **restricted area** surrounds Cu Lao Cham extending 1¼ to 1½ miles on its SW side, ½ to ¾ mile on its W side, ¾ to 1 mile on its NE side and ½ mile on its E side. This area also includes Hon Tai and Hon Giai (6.147). Vessels should remain outside this area at all times.

There is a bay on the SW side of Cu Lao Cham, entered 2¼ miles NW of the SE extremity of the island. The village of **Tan Hop Phuong** stands at the head of the bay; close S of the village is a watering place, close off which are two rocks.

Anchorage, with good shelter during the NE Monsoon, may be obtained in the bay on the SW side of Cu Lao Cham, off Tan Hop Phuong, in depths of 7 to 8 m (23 to 26 ft) sand and mud, with good holding ground; greater depths will be found outside the line joining the two entrance points.

Some rocks lie close off the W extremity of the island, and **Hon Nhan** lies 1 cable off its N extremity. The NW and NE sides of the island are steep: on its E side a few rocks lie close offshore.

6.147

Hon Tai, 225 m (739 ft) high, lies ½ mile S of the SE extremity of Cu Lao Cham. **Roche d'Entrecasteaux** with a least depth of 4·3 m (14 ft) over it, lies 8 cables SW of Hon Tai. Hon Co, see below, bearing more than 311°, and open SW of Hon Mo, leads SW of this rock.

Hon Giai, 72 m (238 ft) high, is separated from the NW end of Cu Lao Cham by a deep channel 6 cables wide. A bank, with depths of less than 10 m (33 ft) over it, lies from 1¼ cables to 1¼ miles SE of Hon Giai; the least depth over this bank, 6·1 m (20 ft), is situated near the middle of its NE side.

Anchorage may be obtained by small craft on the bank SE of Hon Giai. Vessels can also anchor SE of the bank, with the W extremity of Cu Lao Cham bearing 346° and the S extremity of the same island 090°.

6.148

Hon Mo, 59 m (195 ft) high, lies 3¾ cables SSW of Hon Giai.

Hon La, 159 m (523 ft) high, lies 2 miles WNW of the W extremity of Cu Lao Cham.

Hon Co (Ko), 58 m (192 ft) high, and **Hon Cu (Ku)** lie 1 and 1½ miles, respectively, W of Hon La (15° 58′ N, 108° 27′ E).

The depths between these islands and the mainland SW are irregular with patches of 9 to 11 m (30 to 36 ft) in places.

6.149

Currents in the vicinity of Cu Lao Cham are feeble and irregular, and are scarcely felt during the SW Monsoon.

Chart 3988

6.150

In 1960, a shoal with a depth of 9·8 m (32 ft) over it, was reported to lie 53 miles NE of Cu Lao Cham. In 1964 a depth of 12·8 m (42 ft) was reported 8 miles SW of the 9·8 m (32 ft) shoal and in the same year, between these two shoals, depths of less than 9·1 m (30 ft) were reported to exist.

In 1979 volcanic activity was reported 11 miles E of Hong On.

An ammunition **dumping ground** with a radius of 7½ miles is centred 21 miles NE of Cu Lao Cham.

Chart 3884

Approaches to Song Cua Dai

6.151

The mouth of **Song Cua Dai** (15° 53′ N, 108° 24′ E) lies between **Mui An Luong,** a low sandy point and **Mui Cua Dai,** which is higher, 1 mile NW.

There is a custom house on Mui Cua Dai, and a tower stands in shallow water 7½ cables SSE of the same point.

A narrow curved sand cay extends 1 mile E from Mui Cua Dai. To the S of this sand cay, Song Cua Dai is fronted by a bar with a channel through it, in which there is a depth of about 1·5 m (5 ft), but it is subject to frequent changes.

Anchorage may be obtained outside the bar, in depths of 15 to 18 m (49 to 59 ft), but the holding ground is bad. The masts of junks anchored inside the bar can be seen from seaward.

Song Cua Dai is connected by inland waterways with Vung Da Nang (6.156). The towns of **Hoi An** and **Dien Ban** lie 3½ and 9 miles, respectively above the mouth of Song Cua Dai.

Song Cua Dai to Ban Dao Tien Sa

6.152

The coast is low for a distance of 15 miles NW of Song Cua Dai (15° 53′ N, 108° 23′ E), where it is joined by the mountainous **Ban Dao Tien Sa,** forming a large bay. **Tho Son,** 103 m (339 ft) high and prominent, lies 10 miles NW of the mouth of Song Cua Dai (6.151) close to the coast.

Chart 264

6.153

Baie du Rocher Noir is entered at the N end of the above mentioned bay, 5½ miles N of Tho Son. **Rocher Noir,** above water, lies on a shoal outside the entrance to the bay, ½ mile SW of its E entrance point. A patch of coral, which dries, is situated 1 cable W of Rocher Noir. There are other dangers inshore of Rochier Noir.

Danang Rock Quarry No 2 Light-buoy (red spherical; light flashing white every 2½ seconds) is moored 2 cables NNE of Rocher Noir.

Anchorage may be obtained by vessels with local knowledge in Baie du Rocher Noir.

The stretch of coast SW of Rocher Noir is known locally as **China Beach. My Khe Tanker Berth,** 11 cables SSW of Rocher Noir, consists of mooring buoys at the head of a pipeline, which is laid 7½ cables WSW from the berth to the shore. Vessels intending to moor are advised to approach the berth between the SE and SW mooring buoys.

(6.146–6.161) SE Approach to Da Nang
(Original dated prior to 1960)

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Ban Dao Tien Sa

6.154

Mui Da Nang (16° 07′ N, 108° 20′ E) is the E extremity of Ban Dao Tien Sa (6.152) and lies 14 miles NNW of the mouth of Song Cua Dai. The peninsula attains an elevation of 692 m (2272 ft) at **Son Tra** near its centre, and 616 m (2022 ft) near its NW end; a conspicuous radar tower stands on the latter summit. The peninsula is joined to the mainland by a low isthmus. See view (6.146–6.161) on page 165.

Anchorage may be obtained on the S side of Ban Dao Tien Sa in **Bai Nam,** situated 2 miles E of Rocher Noir, where it is sheltered in depths of 11 to 12 m (36 to 39 ft), mud, with **Pointe du Lutin,** on the E side of the bay, in line with the summit of Cu Lao Cham (6.146) bearing 124°. Local knowledge is required.

The E side of Ban Dao Tien Sa is steep-to.

Mui Da Nang Lighthouse is a white round masonry tower, 9 m in height, situated on the coast 1½ miles NW of Mui Da Nang. During the NE Monsoon this light is liable to be obscured by clouds. There is a signal station near the lighthouse with which vessels can communicate by means of the *International Code of Signals.*

Storm signals are displayed at Mui Da Nang Lighthouse. See 1.31.

Chart 3884

6.155

Dumping ground. A dumping ground for ammunition with a radius of 7½ miles is centred 29 miles E of Mui Da Nang.

VUNG DA NANG

Chart 264

6.156

Vung Da Nang is entered between the N extremity of Ban Dao Tien Sa (6.152) and a point 4 miles NW. It can be identified by the high land of Ban Dao Tien Sa and by Hon Son Cha (6.161), 3 cables NE of the NW entrance point.

East side of Vung Da Nang

6.157

Roche Canton (16° 10′ N, 108° 15′ E) lies 3 cables NW of the SE entrance point of Vung Da Nang. The rock has two heads, the N of which dries 0·6 m (2 ft) and the S, close SE, has a depth of 0·3 m (1 ft) over it. Vessels should pass NW of Roche Canton which is usually visible.

Da Nang Light (6.158) bearing less than 211° and open of a projection on the NW side of Ban Dao Tien Sa, or the light in sight at night, leads NW of Roche Canton.

6.158

Da Nang Light is exhibited from a white masonry tower, 5 m in height situated on the W extremity of **Ban Dao Tien Sa,** a small peninsula, 57 m (187 ft) high, on the N side of which is a ruined fort and a flagstaff.

On the SW side of this small peninsula there is an area, dredged to a depth of 9·1 m (30 ft) in 1970, which leads to two piers extending about 190 m SW from the SW side of the peninsula. Berths 1 and 2 are on the NW pier and 3 and 4 on the S pier.

A buoyed channel leads SSE from a position ½ mile W of Ban Dao Tien Sa across the bar in the approach to the harbour.

Hai Quan is joined to Ban Dao Tien Sa by a causeway, 3 m high, on a reef, and lies 3 cables SE of the SW extremity of the small peninsula mentioned above. A jetty, 1 cable long projects SE from the S end of Hai Quan.

Hai Quan Light-structure is a small white tower, 4 m in height, situated on the SW side of Hai Quan.

6.159

Between Hai Quan and the E entrance point of Song Han (6.166), 1½ miles SSE, there is a shallow bay. A channel leads ESE across this bay to some slipways and other harbour installations on the E side of the bay. There are numerous fishing stakes in the shallow parts of this bay.

A foul patch lies in the approach to the harbour 11 cables WNW of the W extremity of Ban Dao Tien Sa and three dangerous wrecks lie in the middle of Vung Da Nang, 1½ miles W of the same point.

West side of Vung Da Nang

6.160

The W side of Vung Da Nang is mountainous; **Nui Hoi,** 1178 m (3866 ft) high and cone-shaped, lies 5 miles WSW of the W entrance point of the bay.

6.161

Hon Son Cha (16° 13′ N, 108° 12′ E), 221 m (726 ft) high and cliffy, lies 3 cables NE of the NW entrance point of Vung Da Nang, from which it is separated by a channel with a depth of 24 m (13 fm) in the fairway. The E side of the island is steep-to.

6.162

Between the W entrance point and **Pointe Isabelle,** 119 m (392 ft) high, 3¼ miles SW, there is a bay, the shores of which are mostly steep-to.

Between Pointe Isabelle and **Mui Nam O,** 3 miles SSW, there are two bays, divided from one another by a projection 437 m (1435 ft) high. **Vung Nam Chon** is the N bay, and **Vung Kim Lien** the S bay.

A **pipeline,** at the seaward end of which is a mooring buoy in a depth of 7·0 m (23 ft), runs in a S direction for 1¼ cables from the N shore of Vung Kim Lien. A white tank, marked by a **light,** is situated near the shore end of the pipeline.

Song Cu De discharges into the S end of Vung Kim Lien.

6.163

The head of Vung Da Nang, between Mui Nam O (16° 07′ N, 108° 08′ E) and the W entrance point of Song Han, 5 miles ESE, is low.

A **pipeline** extends N for 2¼ miles into the bay from a position 3½ miles SE of Mui Nam O: there are three mooring buoys at the head of the pipeline. Two further pipelines 6 cables and 12 cables E of the first extend N into the bay for 6 cables and 8 cables respectively: each has a mooring buoy at its head.

A radio tower, marked by an air obstruction light, is situated 1 mile inland, 2 miles S of Mui Nam O.

6.164

Anchorages. The best anchorage is in the E part of Vung Da Nang. Vessels of light draught can obtain anchorage 2 cables off Hai Quan, sheltered from all winds, in a depth of 5 m (16 ft), mud or mud and shells. In 1962 it was reported that there were depths of up to 7 m (23 ft) in this vicinity. Vessels drawing up to 6·7 m (22 ft) can anchor 3 cables SW of Hai Quan where it is sheltered from the force of the NE Monsoon. Large vessels should anchor W or SW of Da Nang Light in depths of 11 to 15 m (36 to 49 ft), which is more exposed during the NE Monsoon.

Anchorages for vessels carrying explosives are situated within circles of radius 640 m 2½ miles NNW and 3¼ miles WNW, respectively, of Da Nang Light.

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An emergency anchorage is situated within a circle of radius 915 m, 3½ miles NW of Da Nang Light.

A dangerous wreck lies 6½ cables SW of Hai Quan.

Prohibited anchorage. Anchorage is prohibited in the approach to the harbour between the S end of Hai Quan and the N end of the detached breakwater (6.166).

6.165

Pilotage is compulsory. In 1987 it was reported that the pilot boards from a tug in position 3 miles NNW of Da Nang Light (16° 07′·3 N, 108° 12′·6 E). ETA should be signalled 24 hours in advance. The signal should include the ship's name, call sign, nationality and draught; the quantity and nature of cargo; and a request for berth, pilot, fuel and water if required. Anchor berths or berths alongside will be allocated by the Harbour Entrance Control Post which is situated close to Da Nang Light.

Song Han

6.166

Song Han is entered 1¾ miles S of Hai Quan. It is obstructed by a shifting bar, parts of which dry, extending 1¼ miles N from the entrance. Through the bar, there is a channel which runs from the anchorage off Hai Quan to the river entrance; in 1964 it was reported that due to silting and floods the depths in this channel were less than charted, and in 1965 a small sandy islet was reported 1 cable NW of the N end of the detached breakwater, see below, but in the latter year, the depth at high water was reported to be 4·3 m (14 ft).

The channel is protected on its W side, by a detached breakwater 1 mile long, its N extremity being situated ½ mile S of the light-structure on Hai Quan; another breakwater extends 3 cables in a NW direction from the E side of the river entrance. **Lights** are exhibited at both ends of the detached breakwater and at the NW end of the other breakwater SE.

Leading light-beacons (white concrete towers), the front situated on the SE side and the rear near the NE side of Hai Quan, in line bearing 352° astern lead along the dredged channel.

A breakwater extends 5 cables NW from the W entrance point to Song Han. Two inner breakwaters extend 1 cable NW from the E bank 4½ cables and 8½ cables from the E entrance point.

Berths. There are 2235 m of wharfage at Da Nang most of which is on the W side of the river. A quay wall, four ramps and three finger piers are situated close N of the railway bridge. The main commercial wharf (Vietnam Cong Hoa Muon Nam) is situated on the W side of the river closed within the entrance; it has a length of 385 m with a depth of 4·7 m alongside.

6.167

Tidal streams. During small tides, there is no flood stream at Da Nang; even during large tides the flow in the bay does not reach ½ knot, and only just reaches this rate in the river.

During and soon after heavy rains, the current in Song Han has been observed to attain a rate of 7 to 9 knots.

Directions for Da Nang. There are no known dangers in the approach to Vung Da Nang except Roche Canton (6.157).

To enter the river after passing Hai Quan proceed on to the alignment of the leading light-beacons, thence along the dredged channel until within the river entrance when course may be altered as necessary for the allotted berth.

Da Nang

6.168

Da Nang which in 1959 had a population of 108 800 is situated on the W side of the river entrance and has a frontage of 2 miles. It is the principal port of central Vietnam and is of importance from being the outlet from the coal mines at **Nang Son,** 35 miles up river.

Trade. The chief imports are rice, cement and petroleum products and the chief exports are coal, cinnamon and charcoal.

Facilities. Only small repairs can be effected.

Two cranes of up to 7 tons capacity, numerous tugs and barges are available for working cargo.

There are two hospitals.

Deratting exemption certificates can be issued: see 1.92.

Supplies. Fuel and diesel oil are obtainable in limited quantities.

Fresh provisions are available.

Fresh water is obtainable, but only one 45-ton lighter is available to supply vessels at anchor.

Communications. There is regular communication by sea with Ho Chi Minh City, Hué, and other ports. A regular air service is maintained with Ho Chi Minh City. Da Nang is connected to the general rail and telegraph systems.

Song Han is navigable for small vessels with local knowledge, to the coal mines at Nang Son, it is also connected by inland waterways with Song Cua Dai (6.145).

There is a coast radio station at Da Nang.

6.169

Climate. The climate is healthy during the NE Monsoon from November to March, when fresh breezes prevail. In February, squalls from the N appear, warning of which is given by the clouds collecting on the mountains to the N. In April and May, owing to the frequent calms, the heat is stifling, and at this time of the year it is preferable to anchor well out in the bay if possible away from the high land of Ban Dao Tien Sa in order to get any breeze. In June, land and sea breezes set in which somewhat temper the heat of the hottest months.

Climatic tables. See 1.131.

VUNG DA NANG TO MUI LAY

Chart 3884

Hon Son Cha to Cua Thuan An

6.170

From Hon Son Cha (6.161) (16° 13′ N, 108° 12′ E) for 6 miles W as far as the mouth of **Dam Lap An,** which is marked by a pagoda, the coast is rocky; thence to a point 6 miles NW, the coast is low. **Mui Chon May Dong** (16° 21′ N, 108° 01′ E), 2¼ miles farther NW, is the extremity of a steep and wooded peninsula, joined to the coast by a sandy isthmus. **Nui Tron,** 282 m (925 ft) high, the summit of this peninsula, is situated near its SE end, 1¾ miles from the cape.

Vung Chon May is entered between Mui Chon May Dong and **Mui Chon May Tay,** 4 miles W. **Phuoc Hai (Binh An)** at the head of the bay is visible from the offing. A river discharges into the SE end of the bay, and between the mouth of this river and **Cua Kieng,** 2½ miles W, there is a sandy beach. The SW side of the bay is hilly, inland.

Anchorage with good holding ground, may be obtained in a depth of 13 m (43 ft) under Mui Chon May

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Dong but when the NE Monsoon is fairly established it is hardly tenable.

Chart 2661a

6.171

From Mui Chon May Tay to Hon Son Duong (Hon Tseu) (7.16), 140 miles NW, the coast is low and sandy with sand-hills in places, and is backed, at a considerable distance inland, by high mountains which are often hidden by mist, particularly during the NE Monsoon; it is known locally as the **Iron Coast.**

Anchorage may be obtained anywhere off the coast in suitable depths during the SW Monsoon, but during the NE Monsoon, it affords no anchorage.

Chart 3884

6.172

Cua Tu Hien (16° 21′ N, 107° 57′ E), which leads to **Dam Cua Hai,** is entered ½ mile WNW of Mui Chon May Tay. **Nui Linh Thai,** 142 m (467 ft) high, on which is a pagoda, stands close to the coast 2½ miles WNW of Cua Tu Hien. Dam Cua Hai is connected by **Dam Thuy Tu** with Song Huong (6.174).

6.173

Between the entrance of Cua Tu Hien and Cua Thuan An (6.174), 23 miles NW, the coast consists of a sandy beach backed by sand-hills. The siting of villages on the summits of the hills distinguishes this part of the coast from that N of Cua Thuan An where the villages are on the sides of the hills.

Banc de Thuan An, with depths of 12·8 to 16·5 m (42 to 54 ft) over it, lies E of the entrance of Cua Thuan An, parallel to the coast and from 5 to 7 miles offshore.

An isolated depth of 14 m (46 ft) lies 21 miles ESE of the entrance to Cua Thuan An.

6.174

Cua Thuan An (16° 34′ N, 107° 38′ E), the entrance to **Song Huong,** is 1 cable wide and is fronted by **Barre de Thuan An** which is 1 mile wide and subject to great and frequent changes. A barrier, with a number of openings through it, stretches across the inner end of Cua Thuan An. During the SW Monsoon, May to September, vessels with a draught of 3·0 m can probably enter the river and vessels with a draught of 1·5 m can ascend to Hué, 7 miles SSW of the river entrance. The river is much encumbered by sandbanks and fishing stakes.

Three radio masts stand near the coast, the centre one 1¼ miles SE of the S entrance point of Cua Thuan An; their charted positions are approximate. A mooring buoy is situated 2¼ miles E of the same point at the seaward end of a pipeline extending 6½ cables NNE from the shore.

TM Light-buoy (conical; black and white stripes; light group flashing white showing Morse code (A)) is moored N of Barre de Thuan An, and farther S the channel is marked by buoys.

Two pairs of **leading beacons** are situated at the S end of Cua Thuan An. The outer pair (red rectangular daymarks with white stripes) in line bear 170°; the inner pair are situated 1 mile SE of the outer leading beacons and in line bear 146½°. In 1972 it was reported that the navigational aids marking Cua Thuan An could not be relied on.

Tidal streams are strong, both on the bar and in Song Huong.

Anchorage may be obtained outside the bar, in a depth of 18 m (59 ft), but it is very insecure during the NE Monsoon.

Directions. The last of the flood is the best time to enter Cua Thuan An. Song Huong is at its lowest in February and highest in November.

Pilotage. There is no regular pilotage service but the services of a pilot may possibly be obtained.

6.175

Hué which in 1974 had a population of 101 600 is the principal city of central Vietnam.

There is a hospital at Hué.

Hué is connected to Da Nang by good roads and a railway.

Chart 3989

Cua Thuan An to Mui Lay

6.176

Between Cua Thuan An (16° 34′ N, 107° 37′ E) and Mui Lay 43 miles NW, the coast is bordered by a sandy plain with a few villages and occasional trees. The only distinguishing features are the mountains inland, the principal of which are:

Nui Bai Cay Tat, 672 m (2206 ft) high lies 17 miles WSW of Cua Thuan An (chart 3988) (6.174).

Morne Cachalot, 543 m (1783 ft) high, lies 21 miles SW of Mui Lay (17° 05′ N, 107° 05′ E), and 17 miles inland.

Dong Voi Mep, 1700 m (5579 ft) high, lies 30 miles SW of Mui Lay.

There is a prominent church 16½ miles NW of Cua Thuan An and about 2 miles inland; a stranded wreck which provides a good landmark lies on the coast NE of this church.

A depth of 15·8 m (52 ft) lies 8 miles NE of the church.

Less water was reported in 1965 7 miles N of the church.

6.177

Cua Viet (16° 54′ N, 107° 10′ E), which is often marked by breakers, is the entrance to **Song Thach Han (Han Giang)** and is situated 32 miles NW of Cua Thuan An. There is a depth of 1·5 m over the bar, which is ¾ mile outside the entrance and is subject to change.

A dredged and buoyed channel leads into the river. Within the entrance the river widens and deepens, with depths of 6·4 to 9·1 m (21 to 30 ft) as far as a pagoda situated on the S side, 6 cables from the entrance. Above this there is another bar and the river is probably only suitable for boats. Song Thach Han leads to **Quang Tri,** 9 miles S of the entrance, the chief town of an important province. Hué and Quang Tri are linked by inland waterways, roads and rail.

6.178

Cua Tung (17° 01′ N, 107° 06′ E), which is sometimes marked by breakers, is situated 8 miles NW of Cua Viet. It is only accessible by boats drawing 1·8 m. On the N side of the entrance is a sanatorium and a village. A church, situated on the W bank of the river 7 cables SW of the entrance, is an excellent mark for making the entrance.

Cua Tung is the outlet of **Song Ben Hai.**

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CHAPTER 7

GULF OF TONKIN—MUI LAY TO HAIPHONG

GULF OF TONKIN—WEST PART

Chart 2661a

General description

7.1

The **Gulf of Tonkin (Tongking)** lies between the coasts of Vietnam on the W side, and Hainan Dao and Leizhou Bandao, which are Chinese territory, on the E. It is entered from S between Mui Lay (17° 05′ N, 107° 07′ E), and Ying-ko Tsui, the SW extremity of Hainan Dao. Several islands lie near the W shore and there are numerous islets and shoals at its head. The middle of the gulf is deep and the depths gradually decrease towards each shore; the bottom is generally soft and suitable for anchoring.

Fishing stakes are frequently met up to distances of 25 to 30 miles offshore. They consist of several long bamboo poles, anchored by large stones, and carrying a flag; a sampan is usually attached to them, and a vessel should not pass between the sampan and the bamboos.

In the gulf and off Hainan Dao large patches of muddy water, resembling banks are seen at times but, on examination, deep water is almost invariably obtained.

Pilotage is compulsory for any port in Gulf of Tonkin; vessels must proceed to Hon Dau (20° 40′ N, 106° 49′ E) (7.65), where pilots are available.

SOUTH-WEST SIDE OF GULF OF TONKIN

Chart 3989

Mui Lay to Dong Hoi

7.2

Aspect. From abreast Hon Co (7.4) during fine weather, the whole range of mountains from Dong Ngai (6.176) to the peaks in the vicinity of Dong Hoi (7.6) can be seen. The most prominent mountains are Dong Voi Mep (Dent du Tigre) (6.176) and **Dong Chau (Chan),** 1256 m (4122 ft) high, 10 miles farther N. The mountains, which are wooded, approach the coast S of Dong Hoi. **Nui Da Mao,** 733 m (1403 ft) high, lies 7½ miles SW of Dong Hoi. Farther inland may be seen the jagged peaks of another range, of which **Co Roong,** 1622 m (5321 ft, charted as 5050 ft) high and flat, is situated 20 miles WSW of Dong Hoi. The mountain chain continues N, gradually receding from the coast and becoming lower.

7.3

Mui Lay (17° 05′ N, 107° 07′ E) is rocky, covered with vegetation and from 20 to 30 m (66 to 98 ft) high. On the S side of the cape there are some yellowish brown cliffs, at the N end of which is a small bay with **Vinh Banh** village on its shores. On the N side of the cape the cliffs are red and yellow.

7.4

Hon Co (Île de Tigre), 69 m (229 ft) high with a conspicuous tower on its summit, lies 13 miles ENE of Mui Lay and is separated from it by a deep and clear channel. In several places the island is fringed by rocks, and the N and S ends of the island slope down to the sea. The bottom around the island is rocky and uneven.

7.5

Between Mui Lay and Rau Nhat Le (7.6), 37 miles NW, the coast is low and sandy with villages and a few palm trees in places. A large bare sand-hill, 66 m (218 ft) high, lies 4 miles NW of Mui Lay and ¾ mile inland.

Chart 264

Dong Hoi

7.6

Dong Hoi (17° 28′ N, 106° 37′ E), the principal town of the province of **Quang Binh,** stands on the W bank of **Rau Nhat Le (Cua Dong Hoi),** the mouth of **Dai Giang.** A cathedral with a tower, surmounted by a dome, rising above the sand-hills, stands on the W bank, ¾ mile within the entrance, and is prominent in the offing. On a nearer approach the belfry of a white chapel on the E bank, and the old fort near the W entrance point together with the red-roofed houses of the town will be seen.

The entrance to Rau Nhat Le is about 1 cable wide and is fronted by a bank, with depths of 1·8 m (6 ft) and less, extending ½ mile offshore.

The depths in the entrance to the river are subject to frequent change and although a recommended track is indicated on the chart, entry should not be attempted without local knowledge.

Anchorages. During the SW Monsoon, there is good anchorage off Rau Nhat Le. Within the entrance there is anchorage for small vessels between the cathedral and the chapel in a depth of 4 m (13 ft).

Chart 3989

Dong Hoi to Mui Ong

7.7

Between Rau Nhat Le and Pointe Da Nhai, 12 miles NW, the coast is sandy, with low cliffs in places, and is backed by sand-hills. The first of the low cliffs is situated

Cua Dong Hoi
bearing 240°, 10 miles

(7.2, 7.6) Coast in the vicinity of Dong Hoi
(Original dated 1933)

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2¼ miles NW of Rau Nhat Le; 2 miles farther NW there is another cliff, red in colour and rising to a wooded summit on which stands a pagoda, at the entrance to a small river. The lower slopes of the mountains and the plain behind this part of the coast are cultivated and the summit of the mountains are wooded.

A rock, which dries 1·8 m (6 ft), lies 2 miles NNW of Rau Nhat Le and 1 mile offshore.

7.8

Cua Ly Hoa is situated 11 miles NW of Rau Nhat Le. A rocky point lies 1½ miles SE of the river entrance. There is a depth of 1·5 m (5 ft) at high water over the bar of Cua Ly Hoa, which is only suitable for boats and has a channel dredged through it by fishermen after the NE Monsoon. Within the bar there are depths of 2·7 m (9 ft) off **Ly Hoa,** a village situated on the N side of the entrance. Above the village the river becomes shallow and rocky. Ly Hoa is a fish-curing centre.

Pointe Da Nhai (17° 40′ N, 106° 30′ E) consists of two rocky spurs, close together, and bordered by sand; a small white pagoda stands at the foot of the N spur. The mountains approach the coast here and form a promontory, 74 m (244 ft) high, rendering the point prominent. **Ru Hon Bung (Mu Bao)** rises to an elevation of 232 m (762 ft), 2¼ miles WSW of Pointe Da Nhai.

7.9

Between Pointe Da Nhai and Mui Ong (7.14), 16½ miles N, the coast is bordered by sand-hills, within which there is an extensive plain.

7.10

Cua Giang, the mouth of **Song Giang,** is situated 3 miles NNW of Pointe Da Nhai. A bar, 2 cables wide and steep-to, lies ½ mile off the entrance which is about 2 cables wide. Banks, with depths of less than 2 m (6 ft) over them, extend 6 cables E from the N entrance point and 3 cables ENE from the S entrance point; the sea breaks over these banks during strong winds. The depths in the entrance to the river are subject to frequent change. In 1967, vessels with a draught of less than 1·8 m could cross the bar, but entry should not be attempted without local knowledge.

Anchorage may be obtained in a depth of 11 m (36 ft) off **Quang Khe,** a village situated on the S bank of Song Giang ½ mile within the entrance.

There is a wharf, and at Quang Khe a ferry runs to **My Hoa Thuong,** a village on the N bank of the river where fresh provisions can be obtained.

Song Giang is deep as far as the mountains inland, whence timber is floated down to the mouth.

7.11

Between Cua Giang and Cua Ron, 10 miles N, the coast is low and sandy. **Montagne de Marbre,** which is isolated, lies in the plain 10 miles WNW of Cua Giang.

7.12

Cua Ron (17° 52′ N, 106° 27′ E) can be identified by a pagoda and some houses. A rocky bank extends 2¼ miles E from Cua Ron, near the outer extremity of which is **Hon No,** a coral reef which dries 0·9 m (3 ft) and is connected to the reefs extending S from Vung Chua (7.14), all of which should be given a wide berth.

Both entrance points of Cua Ron are foul; the channel is only suitable for junks at high water and is subject to change. The **tidal streams** run strongly through the entrance, but the sea is broken by the reef extending from the N entrance point. Cua Ron is probably only practicable in the fine season.

The village of **Ron,** the centre of important salt works, stands on the N bank, ½ mile within the entrance; the village of **Canh Duong Xa** stands on the S entrance point and a ferry plies between the two.

7.13

The coast for 2 miles NNE of Cua Ron is low and sandy. **Hon Trot,** with a depth of 1·8 m (6 ft) over it, lies on the outer edge of the coastal bank, 1¼ miles N of Hon No.

Between the N end of this sandy coast and Mui Ong, 3½ miles NE, there are two bays, separated by **Mui Rong,** a rocky projection. The shores of both bays are sandy, backed by mountains which rise steeply inland.

Hon Vung Chua (17° 55′ N, 106° 29′ E), 61 m (201 ft) high near the middle, lies off the S bay, 3 miles NE of Cua Ron. The passage W and N of Hon Vung Chua is foul.

7.14

Vung Chua, the N bay, is the only place along this part of the coast where protection can be obtained during the NE Monsoon; the bay affords good holding ground but is exposed to the swell. There is a village, surrounded by vegetation at the head of the bay.

Hon La, 111 m (363 ft, charted as 388 ft), lies 6 cables ESE of Mui Ong, and **Hon Co,** 57 m (188 ft) high, lies between the two. There is a deep and narrow channel between the two islands and between Mui Ong and Hon Co there is a depth of 3·0 m (10 ft). The SW side of Hon Co is fringed by rocks.

Mui Ong can easily be identified by the large red patches on it and a pagoda; it rises to an elevation of 135 m (442 ft) 1 mile within the coast and there are two prominent wooded summits, **Ba Coc,** 1006 m (3301 ft) high, situated 6 miles WNW of the point, and **Hoanh Son,** 1043 m (3423 ft) high, 4 miles farther WNW. A shoal, with a depth of 0·6 m (2 ft) over it, lies 4 cables S of Mui Ong.

Anchorages. Small vessels can obtain anchorage under the shelter of the islets with the summit of Hon Son Duong (7.16), bearing 342°, and seen between Mui Ong and Hon Co, in depths of 5 to 9 m (16 to 30 ft), mud. Larger vessels should keep Hon Gio (7.15) open S of the S extremity of Hon La.

7.15

Hon Gio, 108 m (356 ft, charted as 270 ft) high, lies 8½ miles E of Mui Ong; it is rugged and steep-to.

Mui Ong to Mui Ron

7.16

Between Mui Ong (17° 57′ N, 106° 31′ E) and Mui Doc, 1¼ miles NNW, the coast is rocky. **Mui Doc** rises to an elevation of 263 m (864 ft, charted as 722 ft) ¾ mile W of its extremity.

Anchorage, during the SW Monsoon, may be obtained N of Mui Ong or off Mui Doc.

Mui Dao, a low point, lies 2½ miles NNW of Mui Doc, and another low point lies ½ mile farther NNW; thence the coast is sandy with a few isolated clumps of trees for 7 miles NNW to the base of **Dinh Chua,** a rocky promontory 229 m (752 ft) high, of which **Mui Ron** is its NE extremity. **Nui Can San (Ru Can San),** 366 m (1202 ft) high and prominent, lies 3½ miles SW of Mui Ron.

Hon Son Duong (Hon Tseu), 144 m (474 ft, charted as 450 ft) high and wooded, lies 1½ miles SE of Mui Ron. From E, it has the appearance of three pointed hummocks, with a perpendicular cliff towards its N end, and sloping towards the SW end. A reef, with a rock 2 m (7 ft) high at its outer end, extends 4 cables SE from Hon Son Duong, and **Récif de l'Hamelin,** with a depth of 2·1 m (7 ft) over it, and steep-to on its N and S sides, extends 2¾ cables WSW from the same islet.

Hon Con Chim, 25 m (80 ft, charted as 86 ft) high

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and rocky with two pointed peaks, lies 1½ miles ENE of Hon Son Duong.

Good **anchorage** may be obtained ½ mile S of Hon Son Duong, which is steep-to, with its W extremity bearing 325° and Hon Con Chim, 055°, in a depth of 11 m (36 ft) mud. The islet and the reefs which extend from its extremities shelter this anchorage, but during the NE Monsoon the swell is considerable.

Mui Ron to Cua Hoi

7.17

Between Mui Ron and Cua Hoi (7.28), 54 miles NW, the coast, in general, consists of sandy beaches, within which are sandy plains backed by ranges of high mountains in the interior. The most prominent peak is **Rao Co,** 2234 m (7330 ft) high, which lies 58 miles W of Mui Ron. From N, this peak presents a remarkable double summit, but it is often hidden by clouds. There are several prominent isolated peaks on the plains near the coast.

7.18

Vung Han is entered between the W extremity of Mui Ron and a point 2 miles WSW. The bay affords shelter from E and S winds, but is open to winds from NE to W, and is only suitable for **anchorage** during the SW Monsoon. Small craft with local knowledge can find shelter during the NE Monsoon under a rocky projection on the E side of the bay 3 cables within the entrance. The village of **Vinh Ang** stands at the head of the bay, which is low and sandy, and can be approached by vessels to within a distance depending on their draught.

7.19

Cua Khau, the narrow outlet of a large lagoon, is situated 2¾ miles WSW of Mui Ron; separated from Vung Han by **Ru Cao Vuong,** 349 m (1144 ft) high. Cua Khau is obstructed by a drying bar. The town of **Ky Anh (Ki-Anh)** stands at the head of the lagoon, which is connected to Cua Nhuong (7.22) by a canal which is only suitable for sampans.

7.20

Between Cua Khau and a point 9 miles NW, the coast consists of sandy beaches. **Nui Ban Do,** two prominent peaks, 440 m (1443 ft) high, with **Nui Rut,** 83 m (273 ft, charted as 266 ft) high, 2 miles SE of them, lie 5 miles NW of Cua Khau and ¾ mile inland. The stretch of coast for 8 miles farther NW to Cua Nhuong consists of sandy beaches separated by the cliffs of the coastal hills near the shore. The latter increase in elevation towards Cua Nhuong, E of which, for a distance of 1¾ miles the cliffs are high and precipitous.

A cultivated plain, on which are many villages, extends from Nui Ban Do to the foot of the mountains in the interior. **Ru Cua,** 458 m (1502 ft) high, conical and prominent, lies 1¾ miles ESE of the E entrance point of Cua Nhuong and ¾ mile inland. A peak, 290 m (952 ft) high, lies 2½ miles SSW of Ru Cua and **Nui Dan,** 242 m (795 ft) high, lies 5 miles SE of Ru Cua.

7.21

Hon En, 41 m (134 ft) high, precipitous and, distinguishable by its rectangular shape, lies 3½ miles NE of the entrance to Cua Nhuong. **Hon Man,** a ridge of rocks 7 m (23 ft) high, lies 3 cables ESE of Hon En; a short distance SE of these rocks the sea has been observed to break. In 1860, breakers were reported 2 miles SE of Hon En and 1½ miles from the mainland, but the position is doubtful.

7.22

Cua Nhuong (18° 16′ N, 106° 07′ E) is very narrow and is obstructed by a bar, over which there is a depth of 0·3 m (1 ft). Some rocks lie close NE of the E entrance point. **Hon Buc,** a group of grey rocks from 4 to 5 m (13 to 16 ft) high, and numerous below-water and drying rocks, lie 1 mile N of the entrance to Cua Nhuong. The W entrance point, on which is the village of **Nhuong Ban,** is low and sandy.

Anchorage may be obtained during the SW Monsoon by vessels with local knowledge N of Hon Buc in depths of 9 to 11 m (30 to 36 ft).

7.23

Ru Cum, 107 m (350 ft) high, with a pagoda on its E slope, lies close to the coast 2 miles WNW of Cua Nhuong.

Between Ru Cum and Nui Nam Giai, 13 miles NW, the coast is low, sandy, and bare of vegetation. **Nui Nam Giai,** 372 m (1220 ft) high, is the summit of a ridge terminating 1¾ miles N in **Mui Sot** (18° 28′ N, 105° 56′ E), which is 57 m (186 ft) high, cliffy and connected to the coast by a narrow low sandy isthmus. **Mui Lo** is the N extremity of Mui Sot and is situated 2 cables N of its summit. A rock, 2½ m (9 ft) high, stands ¾ cable N of Mui Lo.

7.24

Cua Sot is entered on the W side of Mui Lo; its W entrance point, which is low and sandy, lies 1½ miles SW of Mui Lo. The entrance is obstructed by a bar with a least depth of 1·8 m (6 ft) over it, situated 3 cables SW of Mui Lo. A rock, awash, lies 6 cables SW of Mui Lo and 2 cables from the E side of the entrance. Within the bar, the depths are greater but the channel narrows. The village of **Kim Doi** stands within the W entrance point. Small vessels with local knowledge can obtain restricted **anchorage** within the bar.

Above Kim Doi, the river widens and divides, the NW branch being **Song Nghen,** and the SE branch **Song Nai.** The town of **Ha Tinh** is situated on the SE branch, 9 miles above Kim Doi.

7.25

Between Cua Sot and Cua Hoi, 20 miles NNW, the coast is sandy. **Bong Son,** 212 m (696 ft) high, lies 3 miles W of Mui Lo and 1 mile inland. **Nui Ong,** consisting of four peaks, the highest of which has an elevation of 709 m (2326 ft), is the highest range in this vicinity, and lies 6½ miles NW of Bong Son and 2½ miles inland.

Cua Hoi and approaches

7.26

Several islets and dangers lie in the approaches to Cua Hoi and offshore.

Hon Mat (Matt) (18° 48′ N, 105° 57′ E), 217 m (712 ft) high, lies 11 miles E of Cua Hoi. The islet is precipitous except on its S side. **Hon Truan,** 43 m (141 ft) high, is situated 1¼ miles E of the S extremity of Hon Mat. Two rocks, one of which is above water, lie 1½ cables NW of Hon Truan. **Roche des Pêcheurs,** with a depth of 1·5 m (5 ft) over it, lies 1½ miles NW of Hon Mat.

Hon Lon (Roche Nom), 12 m (40 ft) high and fringed by rocks on its SW and SE sides, lies in the E approach to Cua Hoi, 7 miles WSW of Hon Mat and 3½ miles offshore. **Hon Nho (Roche Lap),** 3 m (9 ft, charted as 3 ft) high and flat, stands 1 mile NW of Hon Lon, with a rocky patch with a depth of 3·7 m (12 ft) midway between.

Hon Niem (Hon Nieu) lies in the N approach to Cua Hoi, 2½ miles NNE of the entrance and 1¾ miles offshore; it consists of two hills, the higher and E of which is 122 m (401 ft, charted as 433 ft) high, and is separated from the other hill by a low neck. From a

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distance on a S bearing, Hon Niem has the appearance of two islets.

7.27

Anchorages. During the NE Monsoon, small vessels can obtain shelter under the SW side of Hon Mat in a depth of 20 m (11 fm).

There is good anchorage, sheltered from NE winds, for small vessels with local knowledge under the SW side of Hon Niem (18° 48′ N, 105° 46′ E) in a depth of 8 m (26 ft). This anchorage is frequented by vessels unable to enter Cua Hoi.

7.28

Cua Hoi is the mouth of **Song Ca,** a river of some commercial importance. The entrance is 2 cables wide, and both entrance points are low and sandy. A bank, with depths of less than 2 m (6 ft) extends NE up to 1¾ miles from both entrance points.

The bar, composed of hard sand and subject to frequent change, is situated from ¾ mile to 1¾ miles ENE of the entrance. In 1962 there was a least depth of 1·2 m (4 ft) on the bar. No vessel should attempt to cross the bar without a pilot.

Pilotage. Vessels requiring a pilot should give 24 hours' notice. The pilot will then meet the vessel outside the bar off Hon Niem.

The channel through Cua Hoi is buoyed, and a **light** is exhibited from a beacon on the N entrance point.

7.29

Vessels able to cross the bar can ascend the river to Ben Thuy (7.30), 10 miles up river, but the channel is subject to frequent changes. The only known dangers are a rock which dries 0·3 m (1 ft) situated near the E bank of the river 4 miles S of the N entrance point, and a shoal which nearly dries lying close off **Yen Luu,** a village situated on a bend on the N bank of the river, 2 miles NE of Ben Thuy.

7.30

Ben Thuy, on the Song Ca, is the port for **Vinh,** situated 2 miles NW, which is the capital of the province of **Nge An.**

7.31

Tidal streams. Accurate tidal information for the channel should be obtained locally. With large tides, the in-going stream lasts 6 hours and the out-going for 18 hours. With small tides there is no in-going stream. During spates the current is very strong.

At Ben Thuy slack water is 1¾ hours after that at Cua Hoi or about 1 hour after high and low water.

Tidal signals are displayed from a black framework mast with a yard and surmounted by an arrow, situated close W of the light-beacon on the N entrance point, and also from a similar mast at Ben Thuy. The signals, displayed by means of cones, cylinders and balls by day, and white, red and green lights by night, indicate the height of the tide above chart datum. In addition, a white cone point up indicates that the tide is rising and a white cone point down that it is falling.

7.32

Anchorage. There is good anchorage off Ben Thuy, in a depth of 8 m (26 ft). A vessel drawing 3·0 m can anchor ½ cable from the outer end of the piers. There are some mooring buoys off Ben Thuy.

Wharves. There are several piers at Ben Thuy, with depths of 2 to 3 m (7 to 10 ft) at their heads, at which vessels can lie on the mud at low water.

Facilities. Small repairs can be executed at Ben Thuy.

There is a hospital.

Supplies. Some fresh provisions are obtainable.

Communications. There is frequent communication by sea with Haiphong and other ports in Vietnam. Ben Thuy and Vinh are connected to the general railway and telegraph systems.

Storm signals are displayed at Ben Thuy.

Cua Hoi to Mui Ga

7.33

Between Cua Hoi and the mouth of **Song Cua Lo,** 5 miles NW, the coast is low and sandy.

Roche Cua Lo, which is high, black and prominent stands on the edge of the coastal bank 1 cable off a small projection on the coast, 1 mile SE of the S entrance point of Song Cua Lo. A rocky patch, with a depth of 4·3 m (14 ft) over it, lies ¾ mile E of Roche Cua Lo.

A bank, which dries, extends 4 cables N and NE from the S entrance point of Song Cua Lo, leaving a narrow channel, only accessible to boats, between it and the N bank of the river.

Mui Rong, the N entrance point of Song Cua Lo, lies ½ mile ENE of the S entrance point. Mui Rong is fronted by drying rocks up to a distance of ¾ mile and is cliffy; a hill, 102 m (335 ft) high, lies ¼ mile W of it.

7.34

Plateau du Large, a group of rocks, one of which is about ½ m (2 ft) high, is the N danger off this part of the coast and is situated 2¼ miles N of Hon Niem (7.26) and 3 miles offshore. Plateau du Large is generally visible or can be distinguished by the seas breaking over it.

Roche St Anne, which dries 0·3 m (1 ft), lies midway between Plateau du Large and Mui Rong, the N entrance point to Song Cua Lo. A rock, with a depth of less than 2 m (6 ft) over it, the existence of which is doubtful, is charted 1¼ miles NNE of Hon Niem.

7.35

Between Mui Rong and **Mui Ga (Cap St Anne)** (18° 51′ N, 105° 43′ E), ¾ mile N, there is a shallow bay with a sandy beach at its head. Mui Ga consists of cliffs and is fringed by a reef; a shoal with a depth of less than 2 m (6 ft) over it lies 3 cables NE of the cape.

The sandy plain, through which Song Ca (7.28) flows, is terminated by a range of mountains, the summit of which is **Ru Than Vu,** 440 m (1443 ft) high, situated 7 miles W of Mui Ga; **Nui Dai Vac,** 430 m (1411 ft) high, lies 1½ miles farther W. **Ru Thung Nua** rises to an elevation of 453 m (1487 ft) 13 miles WSW of Mui Ga.

WEST SIDE OF GULF OF TONKIN

Mui Ga to Mui Falaise

7.36

Baie du Brandon is entered between Mui Ga and Mui Falaise 15 miles N. Baie du Brandon affords but little shelter, as it is open NE and, during the SW Monsoon, the winds are SE. The mountains lie at a considerable distance from the head of the bay and there are no landmarks near the coast other than **Le Paté,** an isolated peak of regular form, 147 m (483 ft) high, which lies 12½ miles NW of Mui Ga and 5 miles inland.

For a distance of 5½ miles NW of Mui Ga, the SW shore of Baie du Brandon is indented by a number of small bays backed by hills; the projections which form these bays are steep and cliffy with rocks lying close offshore. The W shore of the bay is low.

7.37

Cua Vann (19° 00′ N, 105° 37′ E) is situated at the head of the bay, 10½ miles NNW of Mui Ga. The entrance is ¼ mile wide and is obstructed by a shallow bank which dries as much as 1·8 m (6 ft) in places. The village of **Dien Chau** is situated on the N bank close

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within the entrance. Large junks enter Cua Vann, and during the fine season a considerable number of fishing boats make use of it and may be met at distances of 10 to 15 miles offshore.

A group of rocks, one of which is 12 m (39 ft) high, lies on the coastal bank 3 miles N of Cua Vann and close offshore.

7.38

Cua Thoi discharges into the N part of Baie du Brandon, 3½ miles WSW of Mui Falaise (7.40); the coastal bank, which dries from 1·2 to 2·7 m (4 to 9 ft) extends ¾ mile offshore near the river mouth. A rock, which dries 1·2 m (4 ft) lies in the approach to Cua Thoi, 3¾ miles SW of Mui Falaise and 8 cables offshore.

7.39

Between Mui Falaise and a point 3 miles WSW, the NW side of Baie du Brandon is cliffy.

Lach Quen is situated 1½ miles WSW of Mui Falaise. Above-water rocks, and drying banks extending from both sides of the entrance, restrict the width of the channel to 45 m; there are depths of 0·3 to 0·9 m (1 to 3 ft) in the fairway of the channel a short distance within the entrance. Between **Phu Duc,** a village on the W side, ½ mile within the entrance, and **Manh Son,** a village on the E side abreast Phu Duc, the depths increase. It is often possible for small vessels with local knowledge to enter Lach Quen during the NE Monsoon and obtain **anchorage** off Manh Son in perfect shelter in a depth of about 1 m (3 to 4 ft).

7.40

Mui Falaise, the NE entrance point of Baie du Brandon rises steeply to an elevation of 189 m (620 ft) ½ mile inland, and on its N face there is a broad light-coloured stripe.

Mui Falaise to Dao Bien Son

7.41

Between Mui Falaise and Cap Bouton, 7 miles N, the coast is low and sandy, except for a group of rocks, some of which are below water, which lie from 2½ to 3½ miles N of Mui Falaise and close inshore; two of these rocks are prominent, and **Hon Tru,** the highest, has an elevation of 79 m (about 260 ft).

Charts 3989, 3990

Cua Can (Cua Trap), a shallow estuary with a narrow channel, is entered close W of Cap Bouton, and is used by fishing boats.

Cap Bouton (19° 13′ N, 105° 45′ E) is 138 m (453 ft) high and wooded. Two rocks, the S of which dries 1·5 m (5 ft), lie together 1 mile ENE of the cape and 3 cables offshore. A shoal, the existence of which is doubtful, with a depth of 5·8 m (19 ft) over it, is charted 7 miles SE of Cap Bouton.

7.42

For 7 miles N of Cap Bouton, the coast is bordered by a range of hills, thence to Mui Bang 5½ miles farther N, the coast is sandy.

Mui Ta Lus, joined to the mainland by a narrow neck of sand, lies 4 miles NNE of Cap Bouton. About ½ mile N of Mui Ta Lus is the S extremity of **Ru Truong,** a steep cliff the summit of which, 1 mile farther N, is 171 m (560 ft) high.

Rivière de Yen Hoa discharges close N of this cliff.

7.43

Dao Bien Son (Bien Son) (19° 19′ N, 105° 49′ E), an island 162 m (531 ft) high at its N end, lies 2 miles NNE of Mui Ta Lus and is joined to the mainland by a drying bank. See view 6.

In 1966 the charted position of Dao Bien Son was reported to be approximate.

There is a remarkable vertical rock, almost detached, at the SE extremity of Dao Bien Son; foul ground, the outer end of which dries 1·5 m (5 ft), extends 3½ cables S from the island. There is a ruined fort on the W side of the N extremity of Dao Bien Son, and a disused light-tower is situated ¼ mile SE of the fort.

Anchorage for small craft with local knowledge may be obtained in a shallow bay close W of the N extremity of Dao Bien Son. It is frequented by junks in the fine season, and affords good shelter during the SW Monsoon. A small vessel may obtain good anchorage with N or NE winds, midway between the entrance points of the bay with the ruined fort bearing 075°, in a depth of 5 to 6 m (16 to 20 ft).

Abreast Dao Bien Son, on the mainland, the coast is bordered by hills which attain a height of 430 m (1410 ft) in **Nui Xuoc,** 3¼ miles inland.

Off-lying islets and dangers

7.44

Hon Me, the largest and NE of a group of precipitous islets, lies 5½ miles ENE of the N end of Dao Bien Son. The islets are uninhabited and only frequented by fishermen in summer. Hon Me has several wooded peaks, the highest of which has an elevation of 250 m (820 ft, charted as 800 ft). See view 6.

Hon Vat, 126 m (412 ft, charted as 432 ft) high, lies 2 cables SSE of Hon Me, with **Ko King,** 18 m high, midway between.

Hon Vang, 58 m (189 ft) high, is the largest of several islets and rocks lying within ½ mile of the W end of Hon Me.

Anchorages. Good anchorage for vessels with local knowledge may be obtained off the SW side of Hon Me, between Hon Vang and Hon Vat, in depths of 7 to 8 m (23 to 26 ft). Vessels with local knowledge can also obtain anchorage, sheltered from NE winds, between Hon Vang and the SW side of Hon Me in depths of 13 to 20 m (43 to 66 ft).

7.45

A number of islets and rocks lie within 3 miles S and W of the S extremity of Hon Me (19° 22′ N, 105° 55′ E).

Basse de Van Yen, a rock with a depth of 3·7 m (13 ft) over it, lies 2 miles N of Dao Bien Son (7.43).

Chart 3990

Dao Bien Son to Lach Truong

7.46

Mui Rond, 92 m (301 ft) high, 4 miles NNW of Dao Bien Son, is the S extremity of a peninsula which forms the E entrance point of **Cua Bang** (19° 24′ N, 105° 47′ E). Cua Bang has a narrow entrance and is only accessible to boats. Within Cua Bang there are several villages, the most important of which is **Nhu Ang** situated close within the entrance on the W side. A church tower, situated in **Ba Lang,** another village on the W side of the peninsula mentioned above, can be seen above the trees from seaward.

Between Mui Rond and Mui Bang, 2 miles NE, there is a shallow bay, the shores of which are bordered by sand-hills.

Mui Bang (19° 26′ N, 105° 48′ E), the summit of which is in the form of a finger dominating the sand-hills, is 91 m (298 ft) high.

7.47

Aspect. Nui Tu Vi, 559 m (1833 ft) high and cone-shaped, stands near the S end of a range of mountains 6 miles W of Mui Bang. See view 6. **Nui Cac,** 506 m

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(1659 ft) high, lies at the N end of the range 4 miles N of Nui Tu Vi. Some other hills lie near the coast, of which **Nui Bom,** 306 m (1004 ft, charted as 1069 ft) high, lies 4 miles NE of Nui Cac and 2 miles inland.

The plain of **Thanh Hoa,** through which flow Song Yen and Song Ma, lies N of Nui Cac. The plain is wooded and cultivated near the coast, and studded with villages. **Nui Dau Lon (La Dent),** 302 m high and prominent, lies on this plain 10 miles NW of Nui Cac.

7.48

Between Mui Bang and Mu Chao, 18 miles N, there is a sandy plain. A rock, 1 m (3 ft) high, stands 3¼ miles N of Mui Bang and 2 cables offshore; another rock, which dries 2·1 m (7 ft), lies ¼ mile SSE of this rock.

Lach Yapp, the mouth of **Song Yen,** lies 9 miles N of Mui Bang. The entrance is narrow and shallow banks on which the sea breaks, extend ¾ mile from the entrance points. These banks dry from 0·3 to 1·8 m (1 to 6 ft). The bar at the outer end of the channel has a depth of 1·2 m (4 ft) over it; within the entrance a mud-bank nearly obstructs the river, leaving only a narrow channel near the W bank where there are depths from 0·6 to 3·7 m (2 to 12 ft). The village of **Chau Khe** stands on the S side of the entrance and the village of **Kieh Troc** on the E bank 2¾ miles N of the entrance.

Anchorage may be obtained, by vessels with local knowledge that can cross the bar, in the river near the S entrance point.

Mui Chao (19° 43′ N, 105° 53′ E), 78 m (255 ft) high and fairly prominent, can be distinguished by a pagoda which stands on its N slope and is visible from seaward. There is a sandy beach, which dries, on each side of the cape where landing can be effected according to the prevailing monsoon. The village of **Sam Son** is situated on the coast N of Mui Chao.

Storm signals. When a typhoon is expected, a red ball is displayed by day, and a white light is exhibited at night from a metal framework mast situated at Sam Son.

7.49

Lach Chao, the mouth of **Song Ma,** is entered 4 miles NNE of Mui Chao. The entrance is fronted by a shallow bar, over which there is a depth of about 1·2 m (4 ft), but it is subject to change. Between the entrance points there is a depth of 3·7 m (12 ft) in the fairway.

Thanh Hoa the principal town of the province of the same name stands near the river, 8 miles WNW of the entrance.

7.50

Lach Truong is entered 6½ miles N of Lach Chao, the coast between being low and sandy with several villages. **Nui Truong,** 199 m (652 ft) high, steep and isolated, lies 1 mile SW of the entrance. Lach Truong, the entrance to which is narrow, is accessible at high water to vessels drawing 3·4 m, but the depths are subject to change and no vessel should enter without local knowledge. The river can easily be entered during the NE Monsoon. A rock, with a depth of 0·9 m (3 ft) over it, lies in the middle of the fairway, 2½ cables W of the S entrance point.

Anchorages. Vessels with local knowledge can obtain anchorage in a depth of 7 m (23 ft) S of **Hon Sup,** an islet 3 m (10 ft) high, situated 1½ miles ENE of the S entrance point to Lach Truong. There is also anchorage in Lach Truong off the village on the S side, ½ mile within the entrance, in a depth of 3 m (10 ft).

Hon Ne (19° 55′ N, 106′ 00′ E), 79 m (258 ft) high, lies 3 miles ENE of the entrance to Lach Truong near the edge of the coastal bank which extends S from Cua Day (7.54).

Temporary anchorage, sheltered from N winds, may be obtained S of Hon Ne in a depth of 7 m (23 ft).

SONG CA DELTA AND APPROACHES

7.51

From a position 7 miles N of Hon Ne, a range of serrated mountains, with only a few prominent peaks, extends NW for a considerable distance, **Nui Yen Duyen,** 269 m (883 ft) high, being 9 miles inland. NE of this range is an extensive plain watered by Song Ca (Red River) (7.53) and Song Thai Binh (7.60). The mouths of the different branches of these two rivers extend from the range of mountains, mentioned above, NE for about 70 miles to Lach Huyen (7.94). The rivers are connected to one another by many creeks and canals.

Approaches to Song Ca

7.52

When approaching the coast between Hon Ne (7.50) and Cua Tra Ly (7.59), several church towers situated near the villages along the coast, can be seen. The tower of Saint Pierre in **Quat Lam** (20° 12′ N, 106° 22′ E), situated on the coast 27 miles NE of Hon Ne, is conspicuous and also the two towers of **Thuc Hoa,** 1 mile farther NE, which can be seen from a position E of Cua Ba Lat (7.58). There is a conspicuous church tower at **Van Ly,** 6 miles SW of Quat Lam, and two conspicuous towers of the church at **Tra La,** 6 miles N of Quat Lam. The pointed church tower at **Hun Vi,** 12 miles NE of Quat Lam and 3½ miles inland is also conspicuous.

Fronting the mouths of these rivers are extensive shallow banks of mud, and for a considerable distance inland the coast is low and flat, relieved here and there by trees which appear to rise out of the sea. When the visibility is bad, the proximity of the coastal bank will become apparent, first by the reddish colour of the water and then by the breakers.

Vessels approaching this coast should sound continually and none of the river mouths should be entered without a pilot.

Song Ca

7.53

Song Ca (Red River) is about 400 miles long and has its source in the tableland of **Yunnan** in about Lat 24° 00′ N, Long 101° 30′ E. It flows through Hanoi and waters all the valley of Tonkin. Song Ca has two main tributaries, the **Bo-De** which comes from the SE corner of Yunnan and enters the N bank of Song Ca 22 miles above Hanoi, and **Rivière Noire,** which also has its source in Yunnan and enters the S bank of Song Ca, 37 miles above Hanoi.

7.54

Cua Day, the mouth of **Lach Day,** lies 8 miles E of Hon Ne. Lach Day is joined to Song Ca by several canals of which the principal are **Phu Ly** and **Nam Dinh,** the former affording the best channel from sea to Hanoi.

Tidal streams off the entrance to Cua Day normally flow N on the rising tide and S on the falling tide, but at a position 6 miles ESE of Hon Ne the flow sets S to SW and attains a rate of ¾ knot on the rising tide and 1½ knots on the falling tide; it does not fall below ½ knot. In a position 7 miles farther NE, at neaps the flow is rotary clockwise running E at ½ knot at high water, S at 1 knot at half tide, and veering to N at ¼ knot before high water.

Banks, which dry from 0·9 to 2·4 m (3 to 8 ft) extend 8 miles S from both sides of the entrance to Cua Day; the channel between is marked by buoys with the seaward buoy (red conical; cone topmark) moored 7 miles E of Hon Ne. The channel is subject to change and the buoyage is frequently altered to conform.

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Hon Ne (7.50) is a good mark when approaching the entrance.

Vessels drawing 2·7 m can reach Hanoi by Lach Day, but when the river is low vessels cannot proceed beyond **Phu Ly** (20° 32′ N, 105° 56′ E), a town situated about midway between the entrance and Hanoi.

Charts 1965, 3990

7.55

Tides and tidal streams in Lach Day and Song Ca. The rate of flow in the lower reaches of the river system is often 2 or 3 knots, and the influence of the tidal stream on the flow is apparent up river almost as far as Hanoi during the low-river season, and from the sea to about half way to Hanoi during the high-river season.

From December to May, Song Ca is at its lowest. About May, the melting snow in Upper Tonkin and Yunnan causes the river to rise rapidly, frequently washing away the banks. The annual rise at Hanoi (21° 02′ N, 105° 50′ E) is from 4·9 to 6·1 m.

Pilotage. Vessels should not enter Cua Day without local knowledge, and if proceeding to Hanoi must embark a pilot from Nam Dinh, a town 25 miles N of the entrance.

7.56

Hanoi, the seat of Government of Vietnam, stands on the W bank of Song Ca, 75 miles up river. In 1960 it had a population of 643 576. There are wharves with a frontage of about 850 m with depths of 6·0 m alongside.

Communications. A good road and railway connects Hanoi with Haiphong (7.64). There is an airport at Gia Lam, near Hanoi.

Consul. A British Consular Officer is stationed at Hanoi: see 1.93.

7.57

Above Hanoi vessels of very shallow draught can ascend as far as **Lao-Kai** on the borders of Yunnan where a considerable trade is developing.

Tidal streams. The rate of flow in the upper reaches of Song Ca is often 4 to 5 knots in the high-river season.

Bo-de (7.53) is navigable for shallow draught vessels as far as **Cho Bo,** where there is communications by boat with **Laishan,** 200 miles above Hanoi, but from the end of June to the end of September, navigation is subject to interruption by sudden violent spates, during which a rate of flow of 7 to 8 knots may be reached in the narrows.

Chart 1965

7.58

Cua Lac Giang, 5 miles E of Cua Day and **Cua Ba Lat** (20° 20′ N, 106° 37′ E) 25 miles farther NE, are impracticable for sea-going vessels. A drying mud-bank extends 2 miles from the entrance to Lac Giang, and banks, which dry 1·2 m (4 ft) and are steep-to on their outer edges, extend 6 miles SE from the entrance to Song Ca. Muddy water, having the appearance of banks of mud, extends a considerable distance offshore.

As the cross currents in this vicinity are strong, and also on account of the absence of landmarks, these mouths should be given a wide berth by vessels passing.

A **light,** the position of which is approximate, is shown from a structure on the E side of the entrance to Cua Ba Lat, 6¾ miles E of the conspicuous church tower at Hun Vi (7.52).

A radiobeacon transmits from the lighthouse. A buoy (conical black) is moored ¾ mile N of the light. The channel through the mud-banks fronting Cua Ba Lat is marked by buoys; it is sheltered by the banks and is suitable for boats with local knowledge except in heavy E and SE swells. In 1951 there was a depth of 0·5 m (1½ ft) at the N end of the channel.

Tidal streams, 7 miles E of Cua Ba Lat, set in a N direction on the rising tide with small tides, at up to a rate of 1¾ knots. A little after high water the stream is slack.

7.59

Cua Tra Ly, 10½ miles N of the mouth of Song Ca, would appear to be the easiest access to the main river, but the depths decrease rapidly within, so that junks which use it must tranship their cargo to smaller craft.

SONG THAI BINH

7.60

Song Thai Binh, with several tributaries and mouths, has its source in the mountains which lie SW of the Chinese province of **Kiangsi;** it flows through the Tonkin plain and emerges N of Song Ca. Song Thai Binh is connected with Song Ca by canals, the two most important being **Bac Ninh** and **Cua Loc** which, with **Gua Canal,** enables small vessels to trade between Hanoi and Haiphong (7.87).

Chart 3875, 1965

Landmarks. The following hills assist in identifying the mouth of Song Thai Binh:

Hill	*Height*	*Position*
Nui Voi (chart 1965)	158 m (520 ft)	20° 50′ N, 106° 34′ E
Nui Phu Lien	135 m (444 ft)	20° 48′ N, 106° 37′ E
A peak, on which is the prominent Observatory of Phu Lien, lies 1 mile NE of Nui Phu Lien.		
Nui Cuu Vien	113 m (372 ft)	20° 49′ N, 106° 38′ E
Nui Dao Son (3 peaks)	144 m (474 ft)	20° 56′ N, 106° 40′ E
Two hills (NE hill cone-shaped, SW hill flat)	48 m (159 ft)	20° 45′ N, 106° 39′ E

Chart 1965

7.61

Cua Thai Binh (20° 38′ N, 106° 38′ E) lies with its entrance 9½ miles NNE of Cua Tra Ly. The channel into the river lies between two drying mud-banks which extend 4½ miles ESE from the entrance, and the bar over which there is a depth of 1·5 m (5 ft) is rendered dangerous by the absence of navigational marks. A buoy (red conical) is moored 6 miles SE of the river entrance. Within the bar, the river is navigable by vessels drawing 2·4 m.

Hai Duong (20° 57′ N, 106° 19′ E), the capital of the province of the same name, stands on the W bank of Song Thai Binh, 26 miles NW of the river entrance.

Tidal streams between the mouth of Song Thai Binh and Hai Duong attain a rate of ½ to 1 knot on the out-going stream. In the narrow part of the river between Hai Duong and the junction of Bac Ninh (7.60), 10 miles NNW, the rate is from 1½ to 2 knots.

7.62

Cua Van Uc (20° 41′ N, 106° 43′ E), 1 mile wide at its entrance, lies at the head of a bay between Cua Thai Binh and Do Son Peninsule (7.66), 10 miles ENE. Several drying banks obstruct the entrance. A buoy (red conical) is moored 5 miles SE of the entrance. The channel leading to the entrance is buoyed and leads between the drying banks; the bar, over which there is a depth of 0·9 m (3 ft), extends from 3 to 5 miles SE from the entrance. Within the bar the depths increase.

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7.63

Outlying island. Dao (Île) Bach Long Vi (20° 08′ N, 107° 43′ E) lies 42 miles SE of Xuy Nong Chao (7.67). Its summit is a plateau, 56 m (185 ft) high, of which the slopes are precipitous in places and, in others, covered with trees. It is fringed by a reef, and a rocky bank, with depths of less than 5 m (16 ft) over it, extends ¾ mile from its N and S ends. It should be given a berth of at least 2 miles.

Anchorage for small vessels in the NE Monsoon may be obtained off the S end of the island in a depth of 6 m (20 ft) with the SW extremity bearing 335°.

Shoals of fish are plentiful in the neighbourhood and have been mistaken for breakers.

A depth of 11·0 m (36 ft) exists 26 miles WNW of Dao Bach Long Vi.

HAIPHONG AND APPROACHES

Chart 3875

7.64

Haiphong (7.87) (20° 52′ N, 106° 40′ E) stands on the S bank of Cua Cam, a mouth of Song Thai Binh, 14 miles NW of Hon Dau (7.65). It is approached between Do Son Peninsule and Xuy Nong Chao (7.67), two groups of inaccessible islands, 18½ miles E. See view on chart 1965.

Two channels lead to Haiphong: Cua Cam which lies NE of Do Son Peninsule, and Cua Nam Trieu, 3 miles farther NE. Cua Nam Trieu is the principal channel and is connected to Cua Cam by Canal Maritime. In 1977 it was reported that vessels of 30 000 tonnes can enter through Cua Nam Trieu and can be accommodated in Haiphong.

South-west side of approach to Haiphong

7.65

Hon Dau (20° 40′ N, 106° 49′ E) lies on the SW side of the approach to Haiphong, ½ mile SE of Petit Mirador (7.66). A rock, which dries and is marked by a pylon, lies midway between Hon Dau and Petit Mirador.

Hon Dau Lighthouse is an 8-sided conical tower, 20 m in height, situated on Hon Dau. A radiobeacon transmits from the lighthouse.

7.66

Do Son Peninsule is a high peninsula with **Petit Mirador,** 70 m (231 ft) high at its S extremity. **Grand Mirador,** 127 m (417 ft) high is situated at the N end of the peninsula, 2½ miles NW.

Storm signals are shown from a flagstaff on Petit Mirador.

A pier, 150 m long, is situated on the W side of Petit Mirador; two mooring buoys lie ¼ mile S of this pier and close inshore.

A group of rocks, some of which dry 1·2 m (4 ft), lies 4½ cables NE of Petit Mirador; the SE side of these rocks is marked by a buoy (black conical; ball topmark).

Anchorage. Vessels awaiting the tide should anchor as near Hon Dau as their draught will permit. If there is a heavy swell, vessels are recommended to anchor in Baie d'Apowan (7.70) which is available for vessels drawing up to 5·8 m.

Pointe de Do Son, the NE extremity of Do Son Peninsule, is situated 2¾ miles NNW of Petit Mirador. **Baie des Pilotes,** where there is a custom house, is entered 1½ miles SSW of the point. The town of **Do Son,** the watering place of Haiphong, is situated close SW of Pointe de Do Son.

North-east side of approach to Haiphong

7.67

Xuy Nong Chao (Norway Islands) consist of two main groups of high and inaccessible islands and rocks, separated by a channel 1½ miles wide, which lie about 19 miles ESE of Hon Dau. They make a good landfall for vessels bound for Haiphong and are visible for a good distance. See view on chart 1965.

A 19·8 m (65 ft) patch lies 9½ miles ESE and a dangerous wreck lies 14 miles SE of Norway Est.

Norway Est (20° 37′ N, 107° 12′ E), 74 m (243 ft charted as 225 ft) high, is the largest of the E group and lies 22 miles ESE of Hon Dau. **La Tour,** a pointed rock with a 4·6 m (15 ft) patch 1 cable S of it, lies 3¼ cables N of Norway Est.

Grande Norway, the largest of the W group, lies 2½ miles W of Norway Est. There is a creek on the E side of Grande Norway which affords shelter to small craft at high water.

Grande Norway Lighthouse is a grey round masonry tower and dwelling, 30 m in height, situated on the E side of Grande Norway. A radiobeacon transmits from the lighthouse.

Le Menhir, a rock with a 0·6 m (2 ft) patch 1½ cables N of it, lies at the E end of a group of islets situated ½ mile SE of Grande Norway. **Le Bonnet,** 12 m (41 ft) high, with a rock which dries 2·1 m (7 ft) ¾ cable WSW of it, lies at the W end of the group, ½ mile SSE of Grande Norway.

Île Haute (20° 37′ N, 107° 09′ E) lies ½ mile SW of Grande Norway with a chain of islets and rocks extending 1 mile NW from it.

Île Ouest, 63 m (207 m, charted as 251 ft) high, the W islet of Xuy Nong Chao, lies 8½ cables W of Île Haute.

Caution. Numerous sailing fishing vessels may be encountered in the vicinity of Xuy Nong Chao; most of them display no navigational lights at night.

7.68

Sam Pui Tsao (Fausse Quille), a pointed rock, with **Rocher Pointu,** ½ mile SW of it, lies 2¼ miles NNE of Île Ouest.

Ta Lao Pai (Rocher du Large), 15 m (51 ft) high, stands 3½ miles NW of Île Ouest, in the S approach to Baie de Lan Ha (8.4). A patch, with a depth of 9·8 m (32 ft) over it, lies ½ mile SW, and a rock, with a depth of 2·4 m (8 ft) over it, lies 3 cables NNW of Ta Lao Pai.

A **light** is exhibited from a small white tower standing on Ta Lao Pai.

Basse du Passage, a rocky shoal with a depth of 8·5 m (28 ft) over it, lies 1¾ miles NW of Ta Lao Pai.

(7.67) Xuy Nong Chao from S
(Original dated 1932)

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7.69

Dao Cat Ba (Île de la Cac Ba) lies on the NE side of the approach to Haiphong. A range of mountains, the summit of which is about 345 m (1140 ft) high, lies near the W side of the island. At the S end of the island there is a peninsula, 144 m high. On the summit of the peninsula, ¾ mile NE of the S extremity of the island, there is a prominent fort.

Between Basse du Passage and the S extremity of Dao Cat Ba, there are several high and rocky islets, the S of which is **La Quille,** 41 m (136 ft) high. A rocky shoal, with a depth of 6·1 m (20 ft), lies 6 cables SSE of La Quille, and midway between La Quille and Basse du Passage. Vessels are recommended not to pass between this shoal and La Quille.

Les Orielles, another rocky islet, lies 1½ cables N of La Quille.

Rocher Trident with a depth of 1·8 m (6 ft) over it, lies 1 mile W of La Quille. A dangerous wreck with a depth of 1·5 m (5 ft) over it, lies 9 cables W of Rocher Trident.

Île H, 97 m (320 ft) high, lies ¾ mile NNW of La Quille.

7.70

Baie d'Apowan lies on the W side of the peninsula forming the S extremity of Dao Cat Ba and is entered between Île H and a group of islands, of which **Île B,** 124 m (408 ft) high is the largest, about ½ mile W. Baie d'Apowan is shallow and its shores are indented. Within the entrance, the depths decrease gradually toward the village of **Apowan,** where there is a custom house with a prominent white tower, situated in the NE end of the bay.

Numerous fishing junks frequent the bay for eight months of the year.

Directions for anchoring in Baie d'Apowan. After clearing Rocher Trident and the dangerous wreck 9 cables W of it, steer for the NW extremity of Île H, keeping it in line with the custom house at Apowan bearing 043°, until Île B is abeam, thence alter course to pass ½ cable NW of Île H and thence steer for the village, anchoring according to draught in very soft mud. Vessels with local knowledge and drawing less than 4·3 m can enter between the islets which extend S from Dao Cat Ba.

There is a stone jetty near the custom house at Apowan which can be used by boats at low water, but care must be taken to avoid the below-water rocks near it.

Fresh provisions can be obtained at Apowan.

7.71

Anchorage may be obtained off the W side of Île B (7.70) in a depth of about 6 m (20 ft) with **L'Osselet,** a rock 9 m (31 ft) high, situated 1½ miles NNW of Rocher Trident, bearing S distant 1½ cables.

7.72

Baie du Bengali is a shallow bay entered between **Le Penseur,** the N islet of the group extending ¾ mile NW from Île B, and a point which rises to an elevation of 105 m (346 ft), ½ mile WNW.

Between the NW entrance point of Baie du Bengali and a point 2¾ miles NW, the coast is indented by small bays separated from one another by hilly promontories. **Morne D,** 84 m (277 ft) high, rises ¾ mile SE of the latter point.

7.73

Directions for approach to Haiphong. A vessel bound for Haiphong should make Xuy Nong Chao. When approaching these islands in hazy weather or at night, caution should be observed as soon as the depth becomes less than 30 m (16 fm). To E of these islands the bottom consists of grey mud.

If approaching from S in hazy weather, make for Hon Dau on a bearing of 343°. On this line of bearing the bottom will be found to consist of sand and mud. To NE of this line the bottom is white or grey sand with black speckles; SW of the same line, as far as the meridian of Hon Dau the bottom is almost all mud, often mixed with shells.

Tidal streams off the entrance to Cua Nam Trieu generally set NE on a rising tide and follow the channels. As the tide rises the flow becomes less restricted to the channels and sets across them in a N direction, at the same time attaining its maximum rate. At high water locally, the flow turns anti-clockwise and decreases. On the falling tide, the flow sets SSW, attaining a rate of nearly ¾ knot with small tides and 1 knot with large tides. At 2 hours before low water locally, the flow becomes very weak and it turns at low water. The flow is stronger on the rising tide than on the falling tide, and in the dredged parts of the channel than over the shallows.

7.74

Cua Cam, which is entered close E of Pointe de Do Son (7.66), was formerly the only route to Haiphong, but, owing to silting, it can now only be used by small vessels. It has two bars, the outer one, of hard mud lies E and N of Pointe de Do Son. In 1952 there was a least depth of 0·6 m (2 ft) in the fairway over this bar. The N bar, of soft mud, lies 6 miles NNW of Pointe de Do Son and in the same year had a least depth of 1·2 m (4 ft) over it. Cua Cam joins the main channel to Haiphong, which is described below, 1¾ miles above the N bar.

7.75

Cua Lach Tray, leading to Song Lach Tray, is entered 5½ miles NW of Pointe de Do Son.

Cua Nam Trieu

7.76

Cua Nam Trieu, providing the main channel to Haiphong, is entered between the SE extremity of **Île de Dinh Vu,** situated 6 miles N of Pointe de Do Son, and the SW extremity of Île de Ha Nam (7.94), 3 miles SE. Drying banks extend SE from both entrance points.

The entrance is fronted by a bar through which a dredged channel, marked by leading lights and light-buoys, is maintained. The bottom of the channel consists of hard muddy sand with a layer of soft mud above, so it is necessary to take into account the scend of the sea before entering the channel. Above the bar, the depths increase and vessels can proceed through Canal Maritime to Haiphong.

In 1967 it was reported that the controlling depth in the river entrance was 7·9 m (26 ft) and that deeper laden vessels discharged into lighters until their draught was reduced to that depth. It was reported in 1968 that the estimated depth on the bar ranged from 7·0 m (23 ft) at low water springs to 8·5 m (28 ft) at high water springs. In the same year it was reported that a vessel entering with a draught of 7·9 m had never touched bottom, but another report in the same year stated that a vessel drawing 4·9 m on passage through the dredged channel over the bar, at two hours after low water at Haiphong, had frequently touched bottom.

7.77

Pilotage for merchant vessels is compulsory. The pilot boat has a dark green hull with white housing and displays the Pilot flag. Pilots embark in the vicinity of No 0 Light-buoy (7.78), where vessels should arrive about 2 hours before the time of high water at Hon Dau.

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They should signal their time of arrival and estimated arrival draught at least 48 hours in advance. Pilots will not proceed up river at night.

In 1965 it was reported that an old tug was in use as a pilot boat.

Caution. Junks and fishing craft, some of which are unlit, may be encountered.

7.78

Leading lights are situated at the entrance to Cua Nam Trieu; the rear light is exhibited from a black metal framework tower, 27 m in height, situated 3¾ miles NNE of Pointe de Do Son (20° 43′ N, 106° 48′ E), and the front light from a white hut on piles, situated 1½ miles ESE of the rear light. These lights in line, bearing 303½°, lead through the dredged channel over the bar.

The channel over the bar is marked by light-buoys, those on the NE side even-numbered and painted green, those on the SW side odd-numbered and painted red. No 0 Light-buoy (red; light flashing white every 8 seconds) is the seaward light-buoy, moored 6½ miles SE of the front bar leading-light.

The channel over the bar is subject to change and the buoyage is altered accordingly. In 1983 it was reported that light-buoys were missing or unreliable.

7.79

Leading lights are situated on the NE side of Cua Nam Trieu. The rear light is exhibited from a red framework tower situated 2¼ miles N of the W entrance point of Cua Nam Trieu; the front light is exhibited from a white hut on piles situated 1¾ miles SSE of the rear light. These lights, in line bearing 331°, lead from the inner end of the dredged channel over the bar towards the first bend in the river.

Two lines of **fishing stakes** are situated ¼ mile NW and SE, respectively, of a position 2½ miles SE of the front leading light of the 331° alignment; the head of the SE line, which extends W from the E side of the river, is marked by No 24 Buoy (can); the head of the NW line which extends ENE from the W side of the river is marked by No 25 Buoy (black conical).

A buoy (black conical; can topmark) is moored 4 cables E of Île de Dinh Vu, the W entrance point of Cua Nam Trieu. Less water than charted has been reported in the channel between this buoy and the front leading light, 6 cables N.

A stranded wreck, marked on its E side by a light-buoy, lies in the fairway ¾ mile NNW of the W entrance point of Cua Nam Trieu.

Two **lights,** disposed vertically, are exhibited from a black hut on white piles, 13 m in height, situated 1¼ miles WNW of the W entrance point and ½ mile from the S bank. These lights indicate the turn into the second reach of Cua Nam Trieu.

7.80

Tidal streams. In Cua Nam Trieu, 1 mile below the SE entrance to Canal Maritime, the flow turns about 2½ hours after high water and 1½ hours after low water at Hon Dau (7.65). With large tides the out-going flow exceeds 3 knots.

7.81

Canal Maritime, also known as the **Dinh Vu** cutting, passes through the middle of Île de Dinh Vu and joins Cua Nam Trieu to Cua Cam. It is 7 cables long and has a least depth of 7·9 m (26 ft).

Lights are exhibited from a black tripod with white bands and a white triangular daymark, 12 m in height, situated on the S side of the SE entrance to Canal Maritime, and from a red column on a red platform on piles, 20 m in height, situated close off the N entrance point of the SE entrance.

A **light** is exhibited from a red metal framework tower on piles, 19 m in height, situated on the N entrance point of Canal Maritime at the NW end.

7.82

The channel between Canal Maritime and the entrance to Van Chau (7.91) is marked by buoys and light-buoys, green can and even-numbered to starboard and red can and odd-numbered to port.

Leading beacons, 2 cables apart, are situated on the SW side of Cua Cam, 2 miles NW of the NW entrance to Canal Maritime. These beacons, in line bearing 293°, lead out of the canal to No 6 Light-buoy.

A **light** is exhibited from a black metal framework tower on a white dwelling situated ½ cable off the SW bank of the river and 1¼ miles NW of the W entrance of Canal Maritime. This light is obscured from SW but marks a turning point in the river when proceeding from Haiphong to sea.

Leading beacons are situated on the N side of the river and on the E bank of the entrance to Van Chau (20° 52′·8 N, 106° 42′·2 E) (7.91). These beacons, in line bearing 315°, lead through the channel from No 6 Light-buoy to No 10 Light-buoy.

A black tower stands on the edge of a drying bank on the E side of the entrance to Van Chau.

Leading lights are situated on the W side of the entrance to Van Chau, the rear light from a black tripod, with white bands, 9 m in height, and the front light from a red hut on piles, 14 m in height, situated 335 m ESE from the rear light. These lights, in line bearing 299°, lead through the channel from No 10 Light-buoy to No 14 Buoy (black pillar).

7.83

There are several mooring buoys between the entrance to Van Chau and the entrance to Ha Ly cutting (20° 52′ N, 106° 40′ E) situated on the W side of the town.

A **light** is exhibited from a black tripod, 17 m (55 ft) in height, situated on the edge of the drying shore bank 1 cable N of the E entrance point of Ha Ly cutting.

7.84

The mouth of **Song Tam Bac,** which is not navigable, lies close W of the city on the S side of the river. The entrance to **Ha Ly** cutting, which is dredged to a depth of 2·4 m (8 ft) and leads into Song Tam Bac is situated 4 cables WNW of the mouth of that river. Song Tam Bac joins the Gua Canal to form the inland waterway to Hanoi.

7.85

Tidal streams. At Haiphong in winter, which is the low-river season, the out-going flow commences 2 hours after high water at Hong Dau (7.65) with small tides and 3½ hours after high water with large tides, the maximum rate attained being 1½ knots and 2 to 4 knots respectively. The in-going flow commences 2½ hours after low water at Hon Dau with small tides and 6½ hours after low water with large tides. The maximum rate attained being 1 knot and 2 to 3 knots respectively.

In summer, which is the high-river season, the in-going flow is reduced and the out-going increased in both rate and duration; there is no in-going flow at all if the tidal range is less than 0·3 m. The out-going flows has been observed to reach 4 to 5 knots after heavy rain.

The in-going stream becomes established slowly; in the first half hour its rate does not exceed ½ knot and this is followed by a 1 to 1½ hour period of slack water before the stream is properly established. The out-going stream starts quickly, beginning in the middle of the river, and attains a rate of 1 knot in the first hour.

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Regulations for passage up river

7.86

The Captain of the Port of Haiphong should be informed by radio as soon as possible of the date and hour of arrival.

A Customs Officer and a Police Officer will board the vessel with the pilot at No 0 Light-buoy and accompany the vessel up river to Haiphong.

Vessels must not cross ahead of one another between Nos 8 and 12 Light-buoys; vessels entering with the flood have priority in the channel.

During poor visibility vessels should notify the Captain of the Port their time of departure from No 0 Light-buoy and their speed.

Vessels with a draught of 3·0 m or less must navigate outside the channel NE of the line of starboard-hand light-buoys.

In Canal Maritime, when two vessels are approaching one another in opposite directions, the one from seaward must wait and if necessary anchor until the one from Haiphong has passed through.

When dredgers are at work, vessels must sound their whistles when approaching. A dredger must not be passed until she has displayed the signal 'Not under control' at half mast, indicating that the channel is clear, and one of the following two signals:

(*a*) Cone, point up by day. Two green lights vertical by night	Dredger must be passed on the starboard side.
(*b*) Cone, point down, by day. Two red lights vertical by night	Dredger must be passed on the port side.

Vessels passing a dredger must do so as slowly as possible, and must stop if necessary.

Haiphong

7.87

The city of **Haiphong** is situated on the S side of Cua Cam, 1½ miles W of the W entrance of Van Chau. Haiphong has the appearance of a European town, and is the shipping port of Hanoi and other commercial centres in the N part of Vietnam. It has a natural harbour, improved by dredging, with widths varying from 275 to 675 m. In 1960 the population was 369 248. The principal exports include rice, maize, tin and other ores, cement and timber; the chief imports are machinery, petroleum products, preserved goods, and wines and spirits.

7.88

Berths. In 1977, the port of Haiphong was being rapidly developed and several new berths were under construction. A quay, 200 m in length, and equipped with modern cantilever cranes, has been completed; it can accommodate vessels up to 30 000 tons.

In 1981 it was reported that there were six new berths opposite Ile de Dinh Vu, of which four were in use.

A passenger quay, 80 m long, with a depth of about 4·5 m, is situated on the S bank of the river 5 cables E of the mouth of Song Tam Bac.

Large vessels usually swing upstream, beyond the wharf area and then dock with their bows downstream. Local vessels, generally arrange to arrive to Haiphong at slack water or at the end of the flood stream.

In addition to the above, vessels can moor above Ha Ly cutting as close to the N bank as possible in order to keep the channel clear. The bottom is clay and the holding ground good, even in heavy squalls.

7.89

Facilities. Repairs to ships of 40 000 tons can be carried out.

There are two medium-sized tugs in the port; generally only one of them is available and six hours notice is required for its use.

There are two floating cranes of 30 and 50-tons capacity.

There are numerous lighters for working cargo.

There is a hospital, and a doctor can be brought to the ship if necessary.

Deratting can be carried out: see 1.92.

Supplies. Fuel oil and diesel oil can be obtained but considerable notice is required.

Fresh water is available in small quantities from the wharves, and is also available from a 150 ton lighter at a rate of 25 tons per hour; it is of poor quality.

A few fresh provisions can be obtained but larger quantities are obtainable if advance notice is given.

Communications. There is good communication with Hanoi by inland waterways, rail and road.

Storm and other signals. There is a signal station at Haiphong, with which vessels can communicate by means of the *International Code of Signals*. Storm signals are shown at the signal station flagstaff situated W of the main wharf.

Climatic table. See 1.131.

Song Bach Dang

7.90

Abreast the E entrance to Canal Maritime, Cua Nam Trieu continues N and becomes **Song Bach Dang.**

Tidal streams. The in-going flow in Song Bach Dang reaches a rate of 2 knots.

7.91

Van Chau, a branch of the river which connects Cua Nam Trieu with Cua Cam, is entered 2 miles NNW of the E entrance of Canal Maritime and joins Cua Cam (7.74), 1½ miles ENE of Haiphong. The banks of Van Chau are covered at high water and the edge of the drying bank on the S side of the channel is marked by beacons. The point extending S from the N shore, ½ mile within the entrance, is also marked by a **beacon.**

Van Chau Light-structure (20° 53′ N, 106° 45′ E) is a red metal framework tower on a white dwelling on piles situated on the N side of the E entrance to Van Chau.

Bancs de Ha Nam, which are rocky, lie in the middle of the river 1¾ miles NNE of Van Chau Light-structure. There is a narrow channel, marked by buoys, close E of Bancs de Ha Nam.

7.92

Song Chang (20° 56′ N, 106° 46′ E) which forms the upper part of Lach Huyen (7.94) is entered on the E side of the river, 1 mile N of Bancs de Ha Nam. A narrow channel which has been dredged to a depth of 2·1 m (7 ft), leads from the entrance to **Quang Yen,** a town on the N bank of Song Chang 1¾ miles E, where there is a jetty.

Anchorage may be obtained in Song Bach Dang off the entrance to Song Chang in a depth of 7 m (23 ft), muddy sand.

7.93

Port Redon (20° 59′ N, 106° 46′ E) is situated on the E side of Song Bach Dang, 6½ miles N of Van Chau Light-structure.

Leading beacons are situated at Port Redon. The rear beacon (house and pylon; triangular topmark painted white and black in bands), 13 m in height is situated on the land at Port Redon, and the front beacon

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(white pyramidal structure; triangular topmark painted white and black in bands), 10 m in height is situated 2¾ cables S of the rear beacon. These beacons, in line bearing 355°, lead towards Port Redon from a position off the entrance to Song Chang.

Port Redon is the terminus of a railroad to the coal mines at **Uong Bi,** 3 miles NNE. There is a small jetty near the railway terminus, but vessels can not go alongside it. Coal, cement materials and chrome ore are exported; vessels load from lighters when secured to mooring buoy off the port.

To the N of Port Redon, Song Bach Dang, is known as **Song Da Bach.**

7.94

Lach Huyen is the NE mouth of Song Thai Binh (7.60) and is entered between the SE extremity of **Île de Ha Nam** (20° 48′ N, 106° 54′ E) and the SW end of the swamp extending from the W side of Île de Cac Ba (7.69), 1¼ miles SE. A tower stands on the W entrance point.

The bar of Lach Huyen lies from 3 to 4½ miles SE of the entrance and vessels drawing 4·9 m with local knowledge can cross the bar at high water springs and proceed in deep water to the SE entrance of Song Chang (7.92), situated on the W side of Lach Huyen, 2 miles within the entrance.

A **light** is exhibited from a red hut and platform on piles, 14 m in height, situated on the N side of the SE entrance to Song Chang, 1 mile S of **Île de la Mangue** (20° 51′ N, 106° 53′ E).

7.95

In Song Chang there are depths of not less than 4·9 m (16 ft) to within 2½ miles below Quang Yen (7.92). Between this point and the town there are depths of only 0·9 m (3 ft) and the river is obstructed in places by below-water rocks and drying patches.

Anchorage, for vessels of 4·9 m draught, may be obtained in Song Chang about 4 miles below Quang Yen by approaching through Lach Huyen.

7.96

Between the light situated 1 mile S of Île de la Mangue and **Pointe des Pirates,** ¾ mile E, is the S entrance of a channel which leads into Vung Ha Long and which is described in 8.28.

Directions for Lach Huyen. The channel across the bar of Lach Huyen is narrow and open to the sea, and the marks are distant and often indistinct. No vessel should attempt to enter without local knowledge.

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CHAPTER 8

ARCHIPEL DES FAI TSI LONG—NORTH AND EAST SIDES OF GULF OF TONKIN

GULF OF TONKIN—NORTH PART

ARCHIPEL DES FAI TSI LONG

Charts 3875, 3990

General description

8.1

Between Cua Nam Trieu (20° 45′ N, 107° 52′ E) (7.76) and the border between Vietnam and Republic of China, 80 miles NE, the coast is fronted by numerous high, rocky island groups comprising **Archipel des Fai Tsi Long.** These islands present most varied forms with very distinct summits, some of which attain elevations of over 300 m (1 000 ft) and lie as far as 20 miles off the coast. The archipelago provides the only anchorages for large vessels along the coast of Tonkin.

Most of the archipelago consists of steep rocks and islets of marble or limestone from 45 to 100 m (150 to 300 ft) high some of which have been worn away at the water line and overhang the sea. From a distance these islets appear as a compact mass, but on a nearer approach, sheltered channels between the islets can be distinguished. Some of these channels, where the water is deep and almost clear, are narrow and intricate and need local knowledge. In fog the services of a pilot are essential. The channels lead to secure anchorages which are suitable for large vessels, where the working of cargo is never interrupted and where vessels can berth alongside each other. The holding ground is good and tidal streams only attain a rate of 1 knot at springs. As they are practically landlocked, and the surrounding islands are fairly high these anchorages afford shelter during typhoons.

Steep mountain ranges run parallel to and back the coast NW of the archipelago.

When approaching this part of the coast from S, Xuy Nong Chao (20° 37′ N, 107° 09′ E) (7.67) make a good landfall; the prominent fort on the S end of Dao Cat Ba (20° 43′ N, 107° 03′ E) (7.69) and Lai Tao (8.43), an island with a conical summit 23 miles E, are easily identified.

Caution. Vessels should not pass close to the limestone rocks as large pieces occasionally break off; the small islets should also be given a wide berth, in order to avoid any shallow heads in their vicinity which may not be charted.

Climate and weather. From December to March fogs are frequent and persistent. Among the islands the heat in summer is greater than in the delta area SW of them and to seaward; temperatures sometimes reach 38°C in summer and drop to 7° to 10°C in winter.

APPROACHES TO HON GAY AND PORT COURBET

Chart 3875

8.2

Several channels through Archipel des Fai Tsi Long lead to Hon Gay and Port Courbet (20° 58′ N, 107° 04′ E), the principal channels being:

(*a*) Entrée Profonde, which leads from Baie de Lan Ha (8.4) through Rade du Crapaud and thence through Chenal du Volta or Passe de l'Arche, to Vung Ha Long (8.24).

(*b*) Entrée Profonde, thence through Passe Crochet (8.15) into Passe Henriette and Vung Ha Long.

(*c*) Passe Henriette, which is the best approach to Vung Ha Long.

8.3

Pilotage is compulsory for ports in the Archipel des Fai Tsi Long. Pilots for Hon Gay may be embarked at No 0 Light-buoy at the entrance to Cua Nam Trieu (7.78).

For vessels to enter any of these ports on the day of arrival at No 0 Light-buoy, it is necessary to arrive at that buoy before 1500 on week-days and before mid-day on Sundays and festivals. Having been embarked, the pilot will signal the time of arrival at the port concerned, after which the use of radio is forbidden.

Baie de Lan Ha

8.4

Baie de Lan Ha (20° 45′ N, 107° 06′ E) is entered between the S extremity of Dao Cat Ba (7.69) and **Pointe Edma,** the SW extremity of **Île de la Paix,** 5 miles ENE. On the W side of the bay are some inlets, in the approach to which are numerous islets where secure anchorage can be found. The E side of the bay, high, steep and almost continuous, is formed by Île de la Paix, with several islets lying close off its NW side, and **Île de l'Union,** which lies 1½ cables farther N. At its N end, Baie de Lan Ha leads into Entrée Profonde (8.9), the entrance to which is not visible when approaching from S until past Île du Milieu (8.7).

Tidal streams in Baie de Lan Ha attain a maximum rate with the S-going stream 3 hours after high water locally, and with the N-going stream near low water locally.

8.5

The islets and dangers which lie in the SW approach to Baie de Lan Ha are described in 7.68. To the N of these are several islets and dangers off the SE side of Dao Cat Ba.

Roche du Pêcheur, with a depth of 8·2 m (27 ft) over it, is the SE of these dangers, and lies ½ mile SE of **Îlots M** (20° 42′ N, 107° 04′ E), a group of islets situated 1½ miles ESE of the S extremity of Dao Cac Ba. **Îlots N,** another group of islets, lie ½ mile SW of Îlots M.

Rocher Soulipai, which dries 3·0 m (10 ft) lies 8½ cables NE of Îlots M. A rock with a depth of 0·9 m (3 ft) over it, lies 1½ cables S of Rocher Soulipai.

8.6

Mouillage de l'Ancre is entered between **L'Ecaille** (20° 43′ N, 107° 04′ E), an islet 45 m high with a rock which dries 0·3 m (1 ft), 1 cable NW of it, and **Île Nam**

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Bui, 70 m (231 ft) high, ½ mile E. Île Nam Bui is the S islet of a chain extending 1 mile N to **Île du Détroit,** 76 m (248 ft) high.

Anchorage affording good shelter may be obtained by small vessels with local knowledge in Mouillage de l'Ancre in a depth of 7 m (23 ft). When entering this anchorage from S, **Roche Forban,** which dries 0·6 m (2 ft), situated 2 cables NE of L'Ecaille, must be avoided. Sommet Parseval (8.7) in line with Rocher Nain, see below, bearing 353° leads E of Roche Forban.

Tidal streams in Mouillage de l'Ancre set N at a rate of almost 1 knot on the rising tide, and S at a rate of 1¼ knots on a falling tide, turning in an anticlockwise direction. The stream does not appear to vary in proportion to the tidal range.

The NE end of Mouillage de l'Ancre is entered between Île du Détroit and **Île Bambou,** 97 m (317 ft) high, 2 cables NNW. This entrance is obstructed by a rock, which dries 0·9 m (3 ft), lying close off the NW end of Île du Détroit. Just within the entrance and close W of the W extremity of Île du Détroit is an islet.

Rocher Nain lies at the N end of Mouillage de l'Ancre.

Îlot Cornu and **Îlot S,** both 37 m (120 ft) high, lie 4½ and 1½ cables, respectively, SE of Île du Détroit.

8.7

Between Île Bambou (20° 44′·5 N, 107° 04′·3 E) and **Pointe O,** 2½ miles NE, there is a bay, the shores of which are indented and in which are numerous islets. **Baie du Parseval,** a narrow inlet which extends 2¼ miles NW, is situated in the N part of this bay. **Sommet Parseval,** 237 m (779 ft) high, lies on the SW side of the inlet, 2 miles WNW of Pointe O. **Île du Milieu** (20° 46′ N, 107° 06′ E), 60 m high, is the E islet in the bay and lies 3½ cables SE of Pointe O.

Anchorage for small vessels with local knowledge may be obtained in a depth of 5 to 7 m (16 to 23 ft) in Baie du Parseval WNW of its narrow entrance; it affords excellent shelter in case of a typhoon.

8.8

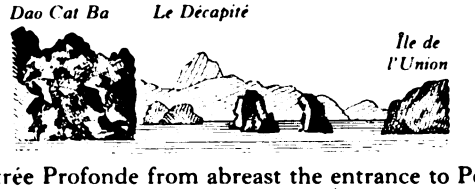
In the approach to Baie de Lan Ha from SE, the S danger is **La Mauvaise,** a rock with a depth of 3·0 m (10 ft) over it, situated 2 miles ESE of Pointe Edma (8.4).

Passe des Hydres, less than 2 cables wide, which separates Île de la Paix from Île de l'Union on the E side of Baie de Lan Ha, is obstructed by rocks at its W end.

In Passe des Hydres, on the falling tide, the **stream** runs from Passe Henriette (8.14) into Baie de Lan Ha. It becomes very strong and turbulent with large tides.

8.9

Entrée Profonde is a channel that leads N from Baie de Lan Ha into Rade du Crapaud (8.11); it is entered between Île du Milieu (8.7) and **Île de l'Union,** which attains an elevation of 218 m (717 ft) in **La Selle,** situated 6½ cables N of the S extremity and a short distance inland. Several islets and dangers lie up to 2 cables off the SW side of Île de l'Union, and a chain of islets and dangers lies off the N part of the W coast of the same island.



Entrée Profonde from abreast the entrance to Port Bayard
(Original dated 1886)

8.10

Port Bayard is situated on the W side of Entrée Profonde at the head of a narrow irregular inlet which is entered between Pointe O (8.7) and another point ¾ mile NE and extends 1½ miles NW. Several islets lie on the NE side of the entrance and another islet lies close N of Pointe O. Entrée Profonde is steep-to on its NW side for 1 mile N of the entrance to the inlet.

Anchorage, with excellent shelter in case of a typhoon, may be obtained by small craft with local knowledge in Port Bayard in depths of 5 to 7 m (16 to 23 ft), but the entrance is narrow, the width between the rocks on either side being only about 75 m.

Rade du Crapaud

8.11

The N end of Entrée Profonde leads into **Rade du Crapaud** between the NW extremity of Île de l'Union and **Le Cobra** (20° 49′ N, 107° 06′ E), an island ½ mile NW; the latter is separated from the NE side of Dao Cat Ba by a narrow channel, in the SE entrance of which there is a rock, 33 m (110 ft) high; see view above. Rade du Crapaud, which can also be entered from E by Passe Henriette (8.17) and Passe Crochet (8.15), affords the most accessible shelter for large vessels from typhoons when in the neighbourhood of Xuy Nong Chao (7.67).

Le Crapaud, an islet 12 m high, lies on the SW side of the roadstead 1 cable NE of Le Cobra. **La Limace,** an islet 31 m (103 ft) high, lies 3 cables NW of Le Cobra. A gravel patch, with a depth of 8·5 m (28 ft) over it, lies 1½ cables NE of the N end of La Limace.

Anchorage can be obtained in Rade du Crapaud with Le Crapaud bearing 150° distant 6½ cables, in a depth of 13 m (43 ft), mud. In making this anchorage the gravel patch NE of La Limace mentioned above, should be avoided. A wreck, with mast showing, lies in the middle of Rade du Crapaud 4½ cables NNW of Le Crapaud.

Tidal streams in Rade du Crapaud set as follows:

Time (Locally)	*Direction*	*Rate*
Low water	ESE turning to NE	½ knot
2 hours after low water	—	slack
4 hours after low water	Turning to W	slack
8 hours after low water	W	1 knot
High water	SW	—
1½ hours after high water	SE	—

Channels NE of Dao Cat Ba

8.12

Numerous islands lie off the NE side of Dao Cat Ba, between which are several deep channels.

Chenal de l'Etoile is entered from Rade du Crapaud between Le Crapaud and La Limace (8.11) and runs between the NE side of Dao Cat Ba and **Île de l'Etoile** (20° 50′ N, 107° 04′ E), 172 m (566 ft) high, which lies ½ mile off it. To the W of Île de l'Etoile, the channel runs NNW and joins Route de Quang Yen (8.28), through Chenal de la Cathédrale. Another channel branches off Chenal de l'Etoile and runs along the NE and N sides of Dao Cat Ba joining Route de Quang Yen near the NW extremity of that island.

8.13

Chenal du Volta is entered from Rade du Crapaud between La Limace and the SE extremity of **Île de la Surprise,** ¾ mile NE. It is the shortest passage to Route

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de Quang yen and runs between Île de l'Etoile and Île de la Surprise.

Several islets, the highest of which has an elevation of 73 m, lie within 2 cables of the SW side of Île de la Surprise. **Le Décapité,** a prominent peak 149 m high, is situated ½ mile NNW of the SE extremity of Île de la Surprise, and the summit of the island, 187 m (615 ft) high, lies 4 cables W of Le Décapité. See view in 8.9. **Baie de la Manche** is situated on the SW side of Île de la Surprise with **Le Trou de l'Obus,** a remarkable inlet, close W of its W entrance point.

Chenal du Volta turns N into Vung Ha Long (8.24) off the W extremity of Île de la Surprise where it joins the S end of Chenal de la Cathédrale.

8.14

Chenal de la Cathédrale continues NW from Chenal du Volta passing between **La Corne (La Cathédrale)** (20° 52′ N, 107° 03′ E), an islet 154 m (504 ft) high 2 miles NW, and **Île des Mamelles,** 185 m (608 ft) high, ½ mile E, to enter the S part of Vung Ha Long. A branch of Chenal de la Cathédrale runs W, S of La Corne, to join the channel which runs along the NE and N sides of Dao Cat Ba (8.12).

Tidal streams in Chenal de la Cathédrale between La Corne and **Île Plate,** ½ mile NNE, set WNW on the rising tide and SSE on the falling tide; the rate at half tide reaches 1½ knots. Between Île de la Chevra (8.25) and **Le Lys,** an island ¾ mile W, the tidal streams set NW on the rising tide and SSE on the falling tide. The direction changes a little after high and low water locally, and the rate at half tide raches 1¼ knots.

8.15

Passe Crochet is entered from W at the E side of Rade du Crapaud; it passes N of **Le Promontoire,** an islet 108 m (365 ft high), which lies 4 cables N of the NW extremity of Île de l'Union, and the other islets lying close off the N end of that island, to connect with Passe Henriette (8.17) 1½ miles E.

8.16

Passe de l'Arche, leading to Vung Ha Long (8.24), is entered between **Le Limaçon** (20° 50′ N, 107° 07′ E), an islet 15 m high, lying 3 cables ESE of the S extremity of Île de la Surprise and a group of islets and dangers ½ mile ESE. The recommended track from Passe Crochet to Passe de l'Arche leads over the bank which extends E from Le Limaçon, where there is a depth of 5·9 m (19½ ft) at its E end and thence NNW between the islets lying close off the E side of Île de la Surprise and a group of islands ¼ mile farther E. A rock, 1 m (3 ft) high, is situated 2 cables NNE of the NE end of Île de la Surprise. Le Décapité (8.13) is a useful mark to distinguish Passe de l'Arche.

Passe Henriette

8.17

Passe Henriette is the best approach channel to Vung Ha Long (8.24) and Port Courbet (8.35) and the only one that should be used by vessels of deep draught. It is entered between Île Henriette (20° 44′ N, 107° 09′ E) and L'Orange (8.19), an islet 1 mile E.

8.18

On the W side of the approach to Passe Henriette, **Île Henriette,** 58 m (192 ft) high, is the SE islet of several lying close together off the SE end of Île de la Paix. Two dangers, La Mauvaise (8.8) and a rock, with a depth of 0·9 m (3 ft), over it, lie 6 and 2 cables respectively, S of Île Henriette. L'Orange, in line with L'Escabeau (8.19) bearing 073°, leads between these two dangers.

Le Bloc, an islet 94 m (310 ft) high, lies 1½ cables N of Île Henriette and **La Licorne,** an island 104 m (343 ft) high near its S end, lies 8 cables NNW of Île Henriette. Several islets lie E of La Licorne: **Le Bouddha,** 28 m (91 ft) high, the SE islet, lies ½ mile NE of the S extremity of La Licorne, and **Le Canot,** 22 m (72 ft) high, the NE islet, lies 4 cables farther N.

Le Youyou, a rock 5 m (15 ft) high, stands 7 cables NE of the N extremity of La Licorne, with two rocky patches, with depths of 2·1 and 5·8 m (7 and 19 ft) over them, lying 1¾ and and 3¾ cables, respectively, NW of it.

La Hache, an islet 72 m high, ½ mile N of La Licorne, is the outermost islet off the N end of Île de la Paix; it is the E entrance point of the NE entrance of Passe des Hydres (8.8).

8.19

On the E side of the entrance to Passe Henriette there are several islets and dangers. **L'Orange,** 40 m (133 ft) high, is the SW islet and lies 1 mile E of Île Henriette (8.18). In 1946 a white mark on the SE point of L'Orange was reported to be visible, though rather indistinctly, for a distance of 5 miles from S.

L'Epieu, an islet 45 m (146 ft) high, lies 8 cables E of L'Orange, and **L'Escabeau,** another islet 52 m (172 ft) high, lies 1½ cables NNE of L'Epieu.

Le Fantôme, an islet 45 m (149 ft) high, lies ¾ mile N of L'Orange, and **La Jonque,** another islet 62 m (202 ft) high, lies ¼ mile N of Le Fantôme.

A rock, with a depth of 1·2 m (4 ft) over it, lies 2 cables WSW of La Jonque (20° 45′ N, 107° 10′ E), and another rock, with a depth of 0·6 m (2 ft) over it, lies 4 cables W of the same islet and is marked on its W side by a buoy (red conical; cone topmark).

Le Donjon, an islet 77 m (254 ft) high, with **La Tente,** a rock 19 m (64 ft) high, 1 cable WNW of it, lies ¾ mile ENE of La Jonque.

Le Bouquet (20° 46′ N, 107° 10′ E) lies 1 mile NNW of La Jonque.

Île du Cirque, 130 m (428 ft) high, situated 7 cables ENE of Le Bouquet, is the S and largest of a group of islets lying at the S end of an extensive bank, with depths of less than 10 m (33 ft) over it, which separates Passe Henriette from Passe de l'Aspic (8.47). **Le Musoir,** 123 m (405 ft) high, situated 6 cables WNW of Île du Cirque, is the SW islet of the group.

A chain of islands extends 3½ miles N of **L'Oiseau,** situated 8½ cables N of Le Musoir. Near the N end of the chain are **Îles des Arènes (Île du Dedale)** and **Le Grand Sommet,** a flat-topped islet 211 m (691 ft) high.

8.20

L'Echelle, 126 m (412 ft) high, lies on the E side of Passe Henriette and is the S of a small group of islets extending ¾ mile NNW to **Le Dragon,** the N islet, on which there is a prominent casemate and lookout station.

Chenal du Ducouedic (8.38), which leads to Grande Baie de Fai Tsi Long, is entered E of L'Echelle.

La Noisette, an islet 35 m (116 ft) high, lies 5½ cables N of Le Dragon, and **Le Puceron,** an islet. 9 m (30 ft) high, lies ¾ mile farther NNW. **La Roche Percée,** an island 126 m (415 ft) high with an islet close S of its W end, lies 3¾ cables N of Le Puceron.

Chenal de l'Hamelin (8.31) leads N between some islets ½ mile NW of La Roche Percée and **L'Index** (20° 52′ N, 107° 07′ E), an islet 156 m (513 ft) high, 2 cables farther W. There is a prominent notch half-way up the steep W side of L'Index, and a white mark on the E side.

L'Index Light-structure is a pyramidal tower situated on the NE side of the islet.

Several islets lie within ½ mile NW of L'Index, the

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largest of which is **Le Boomerang. La Benane,** 101 m (333 ft) high, lies 1 mile NNW of L'Index.

8.21

On the W side of Passe Henriette, N of the E entrance to Passe des Hydres (8.8), several islets lie close off the E side of Île de l'Union. **Île Creuse** (20° 48′ N, 107° 08′ E) lies 3 cables ESE from the NE end of Île de l'Union. A rock, which dries 3·4 m (11 ft), lies 1¼ cables N of Île Creuse with two islets between it and the NE end of Île de l'Union.

La Scie, an island 92 m (303 ft) high, is the NE island of those lying close off the N end of Île de l'Union and lies ½ mile NW of Île Creuse. **Le Nez,** an islet 67 m (221 ft) high, lies off the E entrance to Passe Crochet (8.15), ½ mile NE of La Scie, with deep water between. A reef, with a depth of 3·7 m (12 ft) over it, extends ½ cable E from Le Nez; the outer end of this reef is close W of the recommended track through Passe Henriette.

8.22

Le Salacco (20° 50′ N, 107° 07′ E), an island 161 m (527 ft) high, lies 1 mile NNW of Le Nez, and is the S island of a group which separates Passe Henriette from Passe de l'Arche. **Le Moine,** the NE islet of this group lies 4½ cables NNE of Le Salacco, with a rock, 2 m high, close off its E side. **Le Goeland,** the N island of the group, lies 3 cables NW of Le Moine. A dangerous wreck, marked by a buoy (green conical) moored close E of it, lies 1 cable off the NE side of Le Goeland.

Passe Henriette turns NW and leads into Vung Ha Long between Le Moine and L'Index (8.20) passing ¼ mile N of Le Goeland and off the N entrance to Passe de l'Arche.

Anchorage, which is the most frequented, may be obtained off the N entrance to Passe de l'Arche between the N end of Île de la Surprise and L'Index in depths of 11 to 16 m (36 to 52 ft), mud. At this anchorage it is cooler than farther W.

8.23

Tidal streams in Passe Henriette set N at high water locally with a rate of ¼ to ½ knot, gradually turning W and SW and slackening. The stream sets S in the direction of the pass, 3 hours after high water, and attains its maximum rate of from 1 to 1¼ knots 7 hours after high water. The N flow on the rising tide attains its maximum rate 4 hours before high water locally.

Directions for Passe Henriette. When approaching from SE, Norway Est, the E island of Xuy Nong Chao (7.67) should be given a good berth, thence, with the E extremity of that island astern, bearing 163°, steer for the middle of the fairway between Île Henriette (20° 44′ N, 107° 09′ E) and L'Orange. Then steer for the summit of La Benane (8.20), in line bearing 338°, with the notch on the W side of L'Index, which leads clear of all dangers but a berth of at least 1 cable should be given to Le Youyou (8.18) and Le Nez (8.21) when passing them. In clear weather, a distant summit will be seen on the leading line. When ¼ mile from L'Index, alter course to WNW to the anchorage off the N entrance to Passe de l'Arche or into Vung Ha Long.

When approaching from SW, the islands and dangers SW of Île Henriette may be cleared by keeping L'Escabeau (8.19) in line with L'Orange bearing 073°, until nearing the alignment for Passe Henriette, when the directions for approaching from SE, given above, should be followed.

Vung Ha Long

8.24

Vung Ha Long (Baie d'Halong) lies NE of Dao Cat Ba and at the NW end of Archipel des Fai Tsi Long. The depths in the bay are mostly less than 5 m (16 ft) except for a small area along the S side of the bay where large vessels can anchor off the N entrances to the various channels leading into the bay. There is also an area of deeper water on the N side of the bay in the approaches to Hon Gay.

In 1979, it was reported that a shipyard capable of building and repairing vessels of 5000 tons had been constructed in Vung Ha Long.

8.25

Passe de l'Arche (8.16) enters the S side of Vung Ha Long 1 mile SW of L'Index. **La Noix,** the NE of the islets N of Île de la Surprise, lies 4 cables N of the N extremity of that island.

Île de l'Hôpital (20° 52′ N, 107° 05′ E) on the E side of the N entrance to Chenal du Volta (8.13) lies 6 cables NW of the N extremity of Île de la Surprise. Two islets, the N of which is 45 m high, lie close N of the W extremity of Île de l'Hôpital.

Île de la Chèvre, 169 m (556 ft) high, is the N islet of a chain separating Chenal du Volta from Chenal de la Cathédrale (8.14), 1½ miles WNW of Île de l'Hôpital. **La Selle,** an island 177 m (582 ft) high, lies 1 mile WNW of Île de la Chèvre, and is the W entrance point of Chenal de la Cathédrale.

Les Marionettes (20° 53′ N, 107° 01′ E), a group of rocks, one of which is 13 m (44 ft) high, lie in deep water, 6½ cables NW of La Selle.

8.26

Anchorages. Vessels can anchor in Vung Ha Long anywhere in the deep water between L'Index (8.20) and Les Marionettes. The holding ground is excellent, but vessels making a long stay should weigh their anchors occasionally to prevent them being buried. When weighing during the ebb stream, large vessels should be careful not to approach too closely the edge of the extensive bank which limits the N side of the anchorages.

8.27

Île des Merveilles, 187 m (615 ft) high, is the N island of those lying off Dao Cat Ba, and lies on the W side of Vung Ha Long, 1¼ miles NW of La Selle. **Île aux Cerfs,** 83 m (271 ft) high, lies 1¾ miles NW of Île des Merveilles and 1 mile off the coast to the N, to which it is connected by a drying bank.

8.28

There is a channel, suitable for shallow draught vessels with local knowledge, which leads from the W side of Vung Ha Long to **Route de Quang Yen** and the anchorage 4 miles SE of Quang Yen (7.92) or to Haiphong through Lach Huyen and Cua Nam Frieu. It is entered ½ mile W of Les Marionettes and leads between the N end of **Île de la Brêche** and **La Citadelle,** an islet 124 m (408 ft) high, 1 cable N, thence W for 3½ miles to pass NW of **Les Deux Frères. La Corne** is a prominent peak situated on the N end of an island, 2¼ miles W of La Citadelle. From Les Deux Frères the channel turns S to pass E of **Îlot A** (20° 53′ N, 106° 56′ E), 38 m (126 ft) high, and thence SSW for 3½ miles through the channel along the NW side of Dao Cac Ba to enter Lach Huyen W of Pointe des Pirates (7.95). This latter channel, which has mud-banks covered with mangroves on each side, is marked on its SE side by three **beacons** (black and red; cone topmarks). In 1953, it was reported that this channel carried a least depth of 0·6 to 0·9 m and that vessels drawing from 2·4 to 2·7 m could use it at half-tide.

Port Courbet and Hon Gay approaches

8.29

Deep draught vessels normally approach Port

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Courbet and Hon Gay by Passe Henriette until ½ mile S of L'Index (8.20), thence continue either by altering to NW to cross Vung Ha Long by a dredged channel, or by passing E of L'Index and through Chenal de l'Hamelin (8.31).

Another route leads from Baie de Lan Ha (8.4) via Entrée Profonde and Passe Crochet (8.15). From the E end of Passe Crochet the route leads, either into Passe Henriette or NNW through Passe de l'Arche (8.16) and thence to the dredged channel across Vung Ha Long.

8.30

The dredged channel across Vung Ha Long is entered from a position 1½ miles W of l'Index and runs in a 340° direction across the shallow part of the bay. The channel is about 650 m wide and marked by buoys and **light-beacons** and in 1962 was dredged to a depth of 3·7 m (12 ft). In 1966 it was reported that the beacons were small and were only lit when required.

On the W side of the dredged channel, a rock which dries, lies in the middle of Vung Ha Long, 1½ miles NNE of Île de la Chèvre (8.25) and 8½ cables W of the axis of the channel; it is marked on its SW side by a buoy (black and red; spherical topmark).

A number of small islets lie on the E side of the dredged channel, the most important of which are **La Reine,** 23 m (77 ft) high, and **La Palourde,** ½ m (5 ft) high, situated 2½ miles ENE and 2¾ miles NE of Île de la Chèvre, respectively.

8.31

Chenal de l'Hamelin is an alternative channel leading to Port Courbet and Hon Gay, and has a least depth of 3·7 m (12 ft) in the fairway.

The channel is entered close E of L'Index (20° 52′ N, 107° 07′ E) (8.20) and leads NE for 1½ miles passing 1¼ cables SE of **La Tourelle,** an islet situated ¾ mile NNE of L'Index. A rock, with a depth of 0·6 m (2 ft) over it, lies 2¾ cables SW of La Tourelle.

La Clochette, an islet, lies on the SE side of the channel 6 cables E of La Tourelle.

A **light** is exhibited from a pyramidal tower situated on La Clochette, and in 1959, white **daymarks** were reported to exist on the S side of La Tourelle and on the N side of La Clochette.

From a position 1½ cables N of La Clochette, the channel bifurcates, Chenal du Chateau Renaud (8.40), which leads into Grande Baie des Fai Tsi Long, continues NE, and Chenal de l'Hamelin turns N to pass E off **La Casemate,** an islet 3¼ cables NW of La Clochette and W of **Îlot Frangé,** 51 m (169 ft) high, situated 8 cables N of La Clochette.

The channel passes close W of **La Toque,** an islet 24 m (80 ft) high situated 1¼ miles N of La Clochette, and NE of **Le Porte-Fanal,** an islet 26 m high 4 cables farther W.

A **light** is exhibited from a pyramidal tower, situated on the W end of Le Porte-Fanal, and in 1946 it was reported that there was a white **daymark** on the summit of the same islet.

The shallowest part of Chenal de l'Hamelin is midway between Le Porte-Fanal (20° 55′ N, 107° 07′·5 E) and **La Lionne,** an islet 65 m (212 ft) high, 4½ cables N, where there is a least depth of 3·7 m (12 ft). The channel then turns WNW, passing S of **Le Dogue,** an islet ¼ mile W of La Lionne, and between **Île du Campement,** 129 m (422 ft) high, and **L'Encrier,** a small islet, 11 cables W of La Lionne. A dangerous wreck, marked by a buoy (green) lies 1 cable W of the S end of Île du Campement.

Île du Repos, 144 m (474 ft) high, lies close W of Île du Campement. A **light** is exhibited from a pyramidal tower situated on the S extremity of Île du Repos.

Between Île du Repos and **Île du Chenal,** 131 m (431 ft) high, 9 cables WNW, the channel is obstructed by a bar through which there is a narrow dredged channel with a depth, in 1959, of 4·9 m (16 ft), soft mud. The S side of this channel is marked by three buoys (black conical); the W buoy has a cylinder topmark and occasionally exhibits a light.

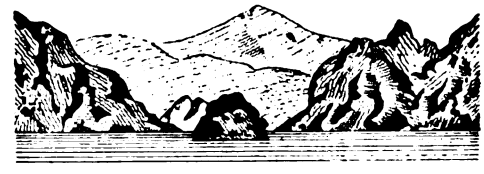
Relatively deep water exists from a position ¼ mile SW of Île du Chenal to Cua Luc 2 miles NNW. **Île des Chaloupes,** 158 m (520 ft) high, with **Île du Repère,** 120 m (394 ft) high, close SW of it, lie midway between Île du Chenal and a steep hill, 198 m (651 ft) high, which lies on the mainland close S of Hon Gay, ¾ mile N.

8.32

Tidal streams in Chenal de l'Hamelin, N of La Clochette, set WSW on the falling tide and attain a rate of 1 knot at half-tide. On the rising tide the flow is NNW and attains its greatest rate, of less than 1 knot, 4 hours before high water.

To the SW of La Lionne, the in-going flow on the rising tide attains a rate of ½ knot at half-tide; it ceases to flow from 2 to 3 hours before high tide.

Directions for Chenal de l'Hamelin. After passing close E of L'Index and SE of La Tourelle, steer for a position 1 cable NW of La Clochette; thence steer N with La Toque in line with the E extremity of **Le Rhinoceros,** a small islet 1¼ miles N, bearing 001° and pass close W of La Toque.



La Toque

La Toque in line with E extremity of Le Rhinoceros, bearing 001°

(Original dated 1886)

After passing La Toque, steer with the NE extremity of that islet, astern, in line with the summit of **Le Pain de Sucre,** an islet 6 cables SE, bearing 139° which leads close NE of Le Porte-Fanal. See view on page 186. When midway between Le Porte-Fanal and La Lionne steer with the S extremity of Île du Chenal bearing 287°, open S of the S extremity of Île du Repos, until abreast Île du Campement.

S extremity of Île du Chenal open of S extremity of Île du Repos, bearing 287°

(Original dated 1886)

Pass close S of Île du Repos and through the dredged channel, keeping about 45 m N of the buoys, with a white mark situated a short distance N of the S extremity of that island, astern, bearing 102°, which will lead to the greater depths S of the entrance to Port Courbet.

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La Toque between Îlot Frangé and Le Pain de Sucre, bearing 141°
(Original dated 1886)

Port Courbet and Hon Gay

8.33

Cua Luc, the entrance to Port Courbet, is situated at the N end of Vung Ha Long, and is 2 cables wide. Hon Gay (Hongay) (8.34) stands on the E side of the approach and **Va Chai** (20° 58′ N, 107° 03′ E), a village, stands on the coast ¼ mile SW of the W entrance point.

Anchorage, by vessels with local knowledge, can be obtained anywhere in the deep water S of Cua Luc, provided they do not obstruct the approach to the wharves at Hon Gay. In the S part of this anchorage, when the tidal stream is against the wind, the sea is rough for boats. Small vessels are recommended to anchor off Va Chai in depths from 4 to 8 m (13 to 26 ft) where the tidal streams are weak and where it is cooler in summer.

Tidal streams. In the anchorage S of Cua Luc, the S flow begins 1 hour after high water with both large and small tides. Outside the entrance the tidal stream is stronger on the E side than on the W side, and during the out-going stream there is an eddy which sets N along the jetty at Hon Gay.

In Cua Luc, the N-going stream begins 4 hours after low water locally during small tides and 2 hours after low water during large tides. The S-going stream begins 1 hour after high water and is the stronger, attaining a rate of 3 knots after heavy rain; the N-going stream has a maximum rate of ¾ knot at half tide.

A **tide-guage** is situated near the E entrance point of Cua Luc.

Prohibited anchorage. A submarine cable and an overhead cable with a vertical clearance of 38 m cross Cua Luc. The landing places of the submarine cable are marked by notice boards. Vessels are prohibited from anchoring in the vicinity of this cable.

8.34

Hon Gay (Hongay), situated on the S side of the E entrance point of Cua Luc, is an important coaling port which is being developed to accommodate cargo vessels of 10 000 tons.

Pilotage is compulsory and is undertaken in daylight only. See 8.3.

Wharves. At present there are two commercial wharves. The N and main wharf is 100 m in length with depths from 4 to 6 m alongside, and is connected by a single-track loop to the railway system. The S wharf is 90 m in length.

Tankers 200 m long drawing 10 m can be accommodated at a buoy berth.

Facilities. Two cranes are available at each wharf.

Tugs and lighters are available.

Small repairs can be effected.

There is a hospital at Hon Gay.

Supplies. Coal, small quantities of fresh provisions, and fresh water are obtainable.

Communications. There is regular communication by sea with Haiphong and Cam Pha (8.64). A railway connects with the mines at Cam Pha.

Storm signals are displayed at Hon Gay.

8.35

Port Courbet, which is entered through Cua Luc (8.33), is a shallow bay with extensive drying flats. On the SE side of the bay, **Île Bayard** (20° 58′ N, 107° 04′ E) lies ½ mile NE of the E entrance point and close offshore. A rock, which dries 1·5 m (5 ft), lies 1½ cables W of the N extremity of Île Bayard.

Île au Charbon, with **Île Boisée** close NW of it, lies ½ mile NNW of Île Bayard. Two rocks, one of which dries 1·2 m (4 ft) and the other with a depth of less than 2 m (6 ft) over it, lie 1¼ and 1¾ cables, respectively, SW of Île au Charbon.

Sommet Jaune, 47 m high and prominent, lies on **Pointe Edmond,** 1½ miles NE of Île au Charbon.

On the SW side of Port Courbet, an islet lies on the drying bank 2½ cables NW of the W entrance point and 1 cable offshore.

A **beacon** (white and black bands) is situated on a rock which dries 2·8 m (6 ft), 8 cables NW of the W entrance point of the port.

Sommet Buisson, 77 m (254 ft) high and prominent, is the summit of a peninsula, situated 1½ miles NW of the W entrance point.

In the middle of the bay a buoy (black conical; cylinder topmark), moored ½ mile W of Île Bayard, marks the outer edge of the shallow part of the bay to the N. There are two mooring buoys a short distance SE and SW of this buoy.

Anchorage may be obtained by small craft close S of these mooring buoys.

GRANDE BAIE DES FAI TSI LONG AND APPROACHES

8.36

Grande Baie des Fai Tsi Long is a large relatively open bay lying within the archipelago E of Vung Ha Long. The bay is exposed to NE winds which cause a sea and swell, somewhat dangerous for boats. Depths in the bay are mostly shallow, with a bank with depths of less than 5 m (16 ft) extending across it in a NE–SW direction for 7½ miles.

Grande Baie des Fai Tsi Long can be entered from SW by Chenal du Ducouedic (8.38) which branches off from Passe Henriette. Chenal du Château Renaud (8.40), which branches off from Chenal de l'Hamelin, enters the W end of the bay and runs along its NW side.

From the S, Grande Baie des Fai Tsi Long is entered via Passe de l'Aspic (8.47) or by Passe de la Pérouse (8.51), which connects with Passe du Casque. Passe de la Mouche (8.56) is also available for ships with local knowledge.

Chenal de la Saône (8.57) which runs along the S and SE sides of the bay lead into other channels between the islands at its E end.

8.37

Prominent islands within Grande Baie des Fai Tsi Long are:

Île du Milieu (20° 55′ N, 107° 15′ E), which lies by itself in the middle of the SE side of the bay.

La Voile, a steep rock 24 m (80 ft) high, slightly leaning to S, on the NW side of the bay, 3½ miles WNW of Île du Milieu.

Île du Chenal, 1½ miles NE of Île du Milieu.

L'Aigle, 4 miles NE of Île du Milieu. Seen from W, L'Aigle dominates all other islands and rocks.

8.38

Chenal du Ducouedic is the deepest channel from

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Passe Henriette to Grande Baie des Fai Tsi Long. It branches off from Passe Henriette 2 miles S of L'Echelle (20° 49'·5 N, 107° 08' E) (8.20) to pass E of that island and thence between La Noisette (8.20) and **Le Sac,** an islet lying ½ mile E. Le Grand Sommet, an island close SE of Le Sac, is described in 8.19.

From abreast Le Sac, the channel leads between La Pastille, see below, and **Île Commune,** 120 m (395 ft) high, 1¼ miles NNE of Le Sac. **Le Sampan,** a rock which dries 3·4 m (11 ft), lies on the SE side of the channel, 3½ cables N of Le Sac. **La Noisette,** bearing 230° and open SE of Le Salacco (8.22), leads NW of Le Sampan.

Le Dague, an islet, lies on the NW side of the channel 6 cables N of Le Sac, with **La Pastille** 3 cables NE of the E end of Le Dague.

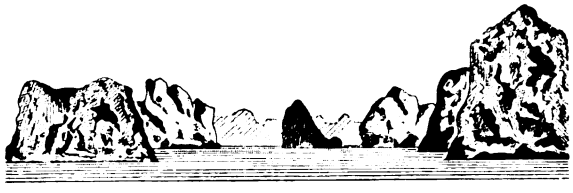
From abreast Île Commune the channel continues NNE and passes between Îlot A (20° 53' N, 107° 10' E), 2 miles NNE of Le Sac, and **Le Tapir,** an islet 3½ cables W. **Les Pleiades** are a group of islets lying on the W side of the channel, 4 cables NW of Île Commune.

After passing NW of Îlot A, the channel continues NE passing close NW of an islet lying 2 cables farther NNE and a rock, which dries 1·8 m (6 ft), ½ mile NNE of Îlot A.

The channel passes NW of **Île de l'Entrée,** 80 m (264 ft) high, situated 8 cables NE of Îlot A, where it turns ENE to enter Grande Baie des Fai Tsi Long. The channel then passes S of **L'Enclume,** 7 m (24 ft) high, and **La Bouée,** 5 m (16 ft) high, two rocks, 4 cables NE and 1 mile ENE, respectively, of Île de l'Entrée, to join Chenal de la Saône (8.57).

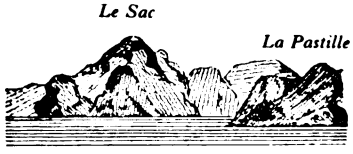
8.39

Directions for Chenal du Ducouedic. After leaving Passe Henriette, steer to pass E of L'Echelle and 1½ cables W of Le Sac, thence steer for Îlot A, bearing about 027°, to pass 1¾ cables W of Le Sampan and between Île Commune and La Pastille.

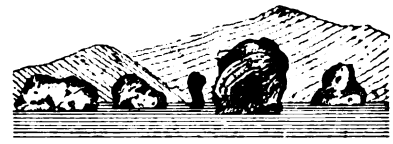


Chenal du Ducouedic
(Original dated 1886)

From abreast Île Commune, keep the SE extremity of La Pastille in line with a hill on the NW side of Le Sac, bearing 198° astern until La Voile (8.37) can be brought into line with **Le Képi,** an islet 40 m (133 ft) high, lying 1½ miles SW of La Voile, bearing 037°. Maintain this alignment, passing NW of Îlot A and the dangers extending ½ mile NNE from it until 1 cable NW of Île de l'Entrée when course can be altered to E into Grande Baie des Fai Tsi Long.



The SE extremity of La Pastille in line with a hill on the NW side of Le Sac, bearing 198°
(Original dated 1886)



La Voile in line with the NW extremity of Le Képi, bearing 037°
(Original dated 1886)

8.40

Chenal du Château Renaud branches off Chenal de l'Hamelin (8.31) abreast the NW side of La Clochette and trends NE between **Le Pierrot** (20° 55' N, 107° 09' E), an islet 113 m (372 ft) high, situated 1¼ miles NE of La Clochette, and **Le Nid,** an islet with a needle-shaped rock at its N extremity, 3 cables S of Le Pierrot. The channel enters Grande Baie des Fai Tsi Long between these two islets and leads across the NW side of the bay to join Chenal du Bourayne (8.61), 1 mile E of L'Aigle.

On the SE side of the channel, **Île des Singes** lies ¼ mile E of Le Nid. A rock, with a depth of 3·7 m (12 ft) over it, lies ¼ mile NNE of Île des Singes. **Le Castel,** an island 169 m (553 ft) high, with a small islet midway between it and the 3·7 m (12 ft) rock, lies ¼ mile NE of Île des Singes. **La Tour,** an islet, lies 3 cables E of Le Castel. **Le Lapin** (20° 54' N, 107° 10' E), an islet 30 m (97 ft) high, lies 4 cables farther NE. Le Képi, already described in 8.39, lies 7 cables ENE of Le Lapin.

On the NW side of the channel, **L'Eteingnoir,** a small islet, lies 1 cable NE of Le Pierrot and **Le Marron,** a rock 16 m (54 ft) high, lies 6 cables N of Le Lapin. La Voile (8.37) lies 1¾ miles ENE of Le Marron. These two rocks are the outermost dangers on the NW side of the channel as far as **Le Dôme** (20° 57' N, 107° 14'·5 E), an islet 101 m (333 ft) high, situated 2¾ miles NE of La Voile.

The channel passes between Le Dôme and **La Carosse,** 34 m (113 ft) high and the highest of two small islets 3 cables ESE. **Le Spectre** (20° 57' N, 107° 15' E), an island, lies 2 cables E of La Carosse. **Roche du Chenal,** which dries 0·9 m (3 ft), lies 2 cables N of Le Spectre. A buoy (spherical; black and red bands) is moored close N of Roche du Chenal, but the channel passes S of the rock.

A rock, with a depth of 4·0 m (13 ft) over it, lies on the S side of the channel, 4 cables NNW of the W extremity of **Le Cône** (20° 57' N, 107° 17' E), an island 117 m (385 ft) high, situated 1¼ miles ENE of Le Spectre.

L'Aigle, 165 m (540 ft) high, lies at the E end of Chenal du Château Renaud and is described in 8.37.

8.41

Directions for Chenal du Château Renaud. Leave Chenal de l'Hamelin when 1½ cables N of La Clochette (8.31) and steer NE to pass 1 cable NW of Le Nid and the same distance SE of Le Pierrot; thence keep the S extremity of Le Pierrot bearing 249°, astern, in line with an islet close NW of La Casemate (8.31) for a distance of 1½ miles. See view on page 188.

From a position ½ mile ESE of Le Marron (20° 55' N, 107° 10' E) the channel runs NE with the N extremity of Le Nid bearing 242° astern, a little open SE of the S extremity of La Tourelle (8.31) (see view on page 188) until ½ mile E of La Voile; thence steer NE for about 1¼ miles until La Voile, Le Marron and L'Eteignoir, an islet 1 cable NE of Le Pierrot, are in line astern bearing 244° (see view on page 188). Maintain this alignment for

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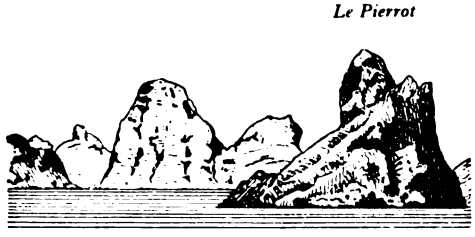
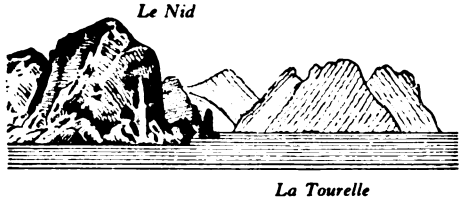
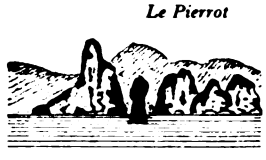
1¼ miles, then steer to pass midway between Le Dôme and Le Carosse, and when between Le Spectre and Roche du Chenal, resume the alignment of La Voile, Le Marron and L'Eteignoir. When ½ mile NE of Le Spectre, steer NNE until the S extremity of Le Dôme is in line with La Voile, bearing 242°, and maintain this alignment for 1¾ miles until 6 cables NW of the N extremity of L'Aigle, when course can be altered to ESE to pass close N of that point and join Chenal du Bourayne (8.61).



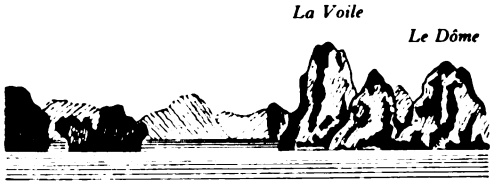
The S extremity of Le Pierrot, bearing 249°
(*Original dated 1886*)



The N extremity of Le Nid, bearing 242°, and a little open SE of the S extremity of La Tourelle
(*Original dated 1886*)



La Voile, Le Marron and L'Eteignoir in line, bearing 244°
(*Original dated 1886*)



The S extremity of Le Dôme in line with La Voile, bearing 242°
(*Original dated 1886*)

SOUTHERN APPROACHES TO CAM PHA

8.42

Several routes indicated on the chart lead through Archipel des Fai Tsi Long to Cam Pha (21° 02′ N, 107° 22′ E). It was reported in 1963 that, due to extensive dredging, vessels drawing up to 8·8 m (29 ft) can enter the port. The approach via Passe de la Pérouse, Passe du Casque and Chenal de la Saône appear to be the deepest, widest and least intricate and has a least depth of 8·2 m (27 ft) in the fairway.

Outer approaches

8.43

Xuy Nong Chao (Norway Islands) are described in 7.67.

Lai Tao (20° 43′ N, 107° 27′ E), 174 m (559 ft) high, is the S island of those lying on the NE side of the S approach to Cam Pha, and is situated 15 miles ENE of Norway Est. The island is steep-to on its S side outside the fringing reef. Several shallow patches with depths of less than 5 m (16 ft) over them, lie between Lai Tao and the islands to NW. **Roche du Chinois,** with a depth of 4·6 m (15 ft) over it, lies 9 cables SW of Lai Tao.

A rock awash, the charted position of which is approximate, lies 1¼ miles SW of Roche du Chinois.

Tidal streams near Lai Tao set NE and SW at a rate of 1 to 1½ knots. See also 8.45.

Charts 3875, 1965

Siong Lai Tao, 130 m (428 ft) high, lies 1 mile NNE of Lai Tao; it is fringed by a reef on its E and SE sides. **Hon Mau,** 9 m (28 ft) high, lies 9 cables W of the S extremity of Siong Lai Tao.

Chart 1965

An islet, 88 m (290 ft) high, lies close off the NE end of Siong Lai Tao, and is connected to it by a reef. A drying reef lies 1 cable N of the islet, and a ridge, with depths of less than 5 m (16 ft) over it, extends 3 cables farther N.

Chart 3875

A rock, which dries 2·1 m (7 ft), lies 8 cables N of the same islet. **Kao Pui Tao,** 17 m (57 ft) high, lies 1¾ miles N of Siong Lai Tao.

Cap Quan Lan (20° 49′ N, 107° 28′ E), the S extremity of **Île de Quan Lan,** lies 8 cables NW of Kao Pui Tao.

8.44

Tché Li Pai, a rock 8 m (28 ft) high, and surrounded by a reef, lies 6 miles WSW of Lai Tao. At low water several pointed rocks, which occasionally resemble the masts of junks, are visible. Foul ground extends 2½ cables NNW from the rock and a 5·5 m (18 ft) rocky patch lies 4½ cables N.

Récif des Salpes, which dry 3·4 m (11 ft), lies 1¼ miles N of Tché Li Pai. A reef, which dries 0·3 m (1 ft), lies 5 cables NNE, and a rocky shoal, with a depth of 3·4 m (11 ft) over it, lies 1 mile NNW of Récif des Salpes.

Ti Mao Tao (Tima Tao), an island 114 m (374 ft, charted as 294 ft) high, lies 3¼ miles WNW of Lai Tao. A shoal, with depths of less than 5 m (16 ft) over it, extends 1¾ miles W from the island. **Baou Tao,** 92 m (303 ft) high, lies on the S side of this bank ½ mile W of the island.

Anchorage. During the NE Monsoon, small vessels with local knowledge can obtain good anchorage 2 cables N of Ti Ma Tao, in a depth of 15 m (49 ft), mud. During the SW Monsoon this anchorage is not good.

Fong Wong, an island 234 m (769 ft) high, lies 1 mile NNE of Ti Ma Tao; it is wooded, rocky and inhabited. **Mao Lin Tao,** 48 m (159 ft) high, lies ¾ mile off the E side of Fong Wong.

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In the area between Ti Ma Tao, Fong Wong and the islands which lie S of Cap Quan Lan (8.43), the depths are irregular.

8.45

Tidal streams. Between Cap Quan Lan, Siong Lai Tao, Ti Ma Tao and Fong Wong, the slack occurs shortly before high water. It then begins to run S to SW between Siong Lai Tao and Ti Ma Tao, reaching its maximum strength of 1 to 1½ knots, from 4 to 5 hours after high water. From 3 to 4 hours before low water, it is nearly slack again and the flow turns quickly through S to NE or N. The flow is strongest between Siong Lai Tao and Cap Quan Lan about 3 hours after low water.

8.46

Île Danh Do-La, 238 m (782 ft) high and inhabited, lies with its SE extremity 8 cables off the W side of Fong Wong. From SW the green hills of the island contrast prominently with the black marble rocks which lie ½ mile off its W side.

Hon Na, 37 m (123 ft) high, lies 3 cables SSE of Île Danh Do-La. A rock, 1 m (3 ft) high, and rocks which dry from 0·6 m to 1·2 m (2 to 4 ft) lie ½ mile WNW of Hon Na.

Île du Sud (20° 47′ N, 107° 20′ E) with **Le Fourmilier,** an islet 55 m (179 ft) high close N of it, is the S islet of a group which lies from ¼ to 1 mile S of the SW extremity of Île Danh Do-La.

Passe de l'Aspic

8.47

Passe de l'Aspic is a narrow channel lying E of Passe Henriette (8.17) which leads 6 miles NNE to join Chenal de la Saône (8.57) on the S side of Grande Baie des Fai Tsi Long. There is a least depth of 8·2 m (27 ft) in the fairway.

Passe de l'Aspic is entered 1 mile NW of **La Mère,** an islet 44 m (146 ft) high, with **L'Enfant,** a rock 19 m (61 ft) high close SE of it, situated 5 miles W of Le Fourmilier; it is the S and highest of a cluster of islets. A rock, which dries 1·8 m (6 ft), lies ½ cable NW of La Mère. **L'Arche,** an islet, lies 6 cables NW of La Mère; there is a depth of 2·7 m (9 ft) close SW of L'Arche. **Le Roquet,** an islet, lies on the E side of the channel, 6 cables NNE of L'Arche.

On the NW side of the entrance to Passe de l'Aspic there is a group of islets extending N from L'Epieu (20° 44′ N, 107° 11′ E) and L'Escabeau which are described in 8.19. **L'Oreiller,** 76 m (248 ft) high, and **L'Îlot Pointu,** 52 m (172 ft) high, lie 2 miles N of L'Epieu. **L'Elephant,** 77 m (254 ft) high, lies 1 mile NNE of L'Îlot Pointu. A rocky shoal, with a depth of 4·9 m (16 ft) over it, lies 1¼ cables E and a similar shoal with a depth of 2·4 m (8 ft) over it, lies 4½ cables NNW of L'Elephant.

8.48

Passe du Pluvier, which branches NNW from Passe de l'Aspic 1¼ miles ESE of L'Elephant, leads NW towards **Passe du Vaico** and **Chenal du Brandon,** which in turn, lead across an extensive shallow area to join Chenal du Ducouedic (8.38). These channels are only suitable for shallow draught vessels with local knowledge.

8.49

Île de l'Aspic lies on the W side of the channel 5½ cables NW of Le Roquet (8.47); it is the SE islet of a group of islands which separates Passe du Pluvier from Chenal du Brandon. **L'Escalier** (20° 50′ N, 107° 14′ E), an islet, also lies on the W side of the channel, 8 cables NNE of Île de l'Aspic. A rocky ledge, with a depth of 1·8 m (6 ft) at its extremity, extends 1¼ cables S from L'Escalier, and a bank, with a depth of 3·4 m (11 ft) over it, extends ½ cable E.

Île du Souffleur lies on the E side of Passe de l'Aspic, 4 cables E of L'Escalier, and the channel passes between these two islets. A rock, with a depth of 3·0 m (10 ft) over it, lies 3 cables S of Île du Souffleur. A ridge, with a depth of 2·4 m (8 ft) at its S end, close N of Île du Souffleur, connects that islet with **Île de l'Arène,** 6 cables N.

La Tranche, a small islet, lies on the W side of the channel 4 cables NW of the W extremity of Île de l'Arène. Chenal du Brandon (8.48) branches off Passe de l'Aspic, S of La Tranche.

Île du Pont lies on the E side of the channel, 8 cables N of Île de l'Arène, with several other islets between them. **La Potiche,** a rock close off the E side of an islet on the W side of the channel, is situated 1 cable W of Île du Pont.

Tidal streams in the channel between Île du Pont and La Potiche are very strong.

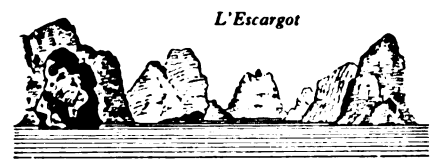
L'Escargot (20° 53′ N, 107° 15′ E), an island 66 m (218 ft) high, lies on the W side of the N entrance to Passe de l'Aspic, 1 mile N of Île du Pont. **Le Nègre,** a rock lies on the E side of the N entrance to Passe de l'Aspic, 6 cables E of L'Escargot.

8.50

Directions for Passe de l'Aspic. When approaching Passe de l'Aspic from SW, pass at least 1 mile E of L'Epieu and L'Escabeau (8.19) and then approach the entrance with L'Escabeau bearing 210°, astern, and showing midway between Sam Pui Tsao (7.68) and the NW island of the group lying 1 mile W of Grande Norway. From a position 3 cables NW of L'Arche, steer for L'Escargot, bearing 011°, which will be seen between the islets bordering each side of Passe de l'Aspic.

L'Escabeau, bearing 210°, midway between Sam Pui Tsao and the group of islands lying W of Xuy Nong Chao

(Original dated 1886)



L'Escargot, bearing 011°, between the islands on each side of the pass

(Original dated 1886)

After passing between Île du Pont and La Potiche the channel runs NE for ½ mile to pass close E of two small islets lying close together, and thence NNE to pass W of another small islet, 3 cables farther NE. The channel then enters Grande Baie des Fai Tsi Long between L'Escargot and Le Nègre, joining Chenal de la Saône 1 mile farther NNE.

Shallow patches, over which there are depths from 5·8 to 7·0 m (19 to 23 ft), lie E of L'Escargot and WSW of Le

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Nègre, but there is a narrow channel between them in which the depths are greater.

Passe de La Pérouse and Passe du Casque

8.51

Passe de La Pérouse (du Lapèrouse) lies E of Passe de L'Aspic and is approached from SW of L'Epieu (8.19) and Tché Li Pai (20° 41′ N, 107° 20′ E) (8.44). With Passe du Casque (8.52), it forms the deepest and least intricate approach channel to Cam Pha from SW, having a least depth of 8·5 m (28 ft) in the fairway at its S end.

La Mère and L'Enfant (8.47), and Le Cancrelat, see below, are easy to identify when approaching from S.

On the NW side of the approach, an islet lies 1¼ miles ENE of La Mère and **Le Turco,** a rock, lies 4 cables farther NE. These two are the S dangers of a group of islets extending S from **La Méduse,** the largest island on the NW side of the channel.

Le Cancrelat, an islet on the SE side of the channel, is situated 1½ miles NE of Le Turco.

Le Cancrelat Light-structure is a white tower with a red lantern, 5 m in height, situated on the islet.

L'Encrier, a rock, marked by a beacon, lies 1½ miles NNE of Le Cancrelat, and between them is a group of islets and shoals which lie within 1 cable of the SE side of the fairway.

A buoy (small red conical) marks the E side of a 0·6 m (2 ft) patch which lies off the E extremity of La Méduse, and close W of the fairway. An above-water rock lies close W of this 0·6 m (2 ft) patch.

The channel enters Passe du Casque between L'Encrier and two small islets which lie close N of the 0·6 m (2 ft) patch just mentioned.

Tidal streams at the junction of Passe de la Pérouse and Passe du Casque reach a rate of 1½ knots with a tidal range of about 3·0 m.

8.52

Passe du Casque leads NW from L'Encrier and passes between **Le Marsouin,** an islet which lies ¾ mile NW of L'Encrier, and a group of islets lying on an extensive shoal on the NE side of the channel 3 cables NE.

Le Casque, an island 261 m (855 ft) high, is situated 1¼ miles NNW of Le Marsouin. The NE extremity of Le Casque is marked by a **beacon** backed with a white mark facing N. A rock, with a depth of 1·8 m (6 ft) over it, lies 1 cable N of the W extremity of the island.

A **light** is exhibited from an islet on the NE side of the channel, 3½ cables ESE of Le Casque. Another islet lies close NW of it.

A bank, with depths of less than 2 m (6 ft) over it, extends 1¾ miles N from the above light. A rock, 23 m (77 ft) high, with an islet 1 cable E of it, lies on the W edge of this bank, 3½ cables N of the light.

Passe du Casque enters Grande Baie des Fai Tsi Long off Le Casque, and joins Chenal de la Saône 1½ miles farther N.

8.53

Directions for Passe de la Pérouse and Passe du Casque. The best line of approach from SW is with Sam Pui Tsao (7.68) astern, bearing 221°, which leads to a position 4 cables SSE of Le Turco, thence a course of 029° leads through Passe de la Pérouse to a position ¼ mile NW of L'Encrier. From this position, steer NW keeping the SW extremity of Île Double (20° 49′ N, 107° 20′ E) (8.54) astern bearing 146° and just open SW of **Île Verte,** situated ¼ mile SE of L'Encrier, which leads through Passe du Casque to join Chenal de la Saône, 1¼ miles N of Le Casque.

Passe de la Mouche

8.54

Passe de la Mouche lies E of Passe de la Pérouse and should only be used by vessels with local knowledge.

Tidal streams in the channel are very strong especially abreast the SE end of Îles des Biches (8.56).

The approach from SW lies between Le Cancrelat (8.51) and **Île Double,** the S and largest of a group of islets lying 2 miles SE.

On the W side of the approach, **Île de l'Entrée** lies 9 cables ENE of Le Cancrelat. A rock, which dries 0·3 m (1 ft), lies 1 cable E of the N end of Île de l'Entrée, and two rocks, the E of which dries 2·7 m (9 ft), lie close together 4 cables N of the same island.

The W coast of Île Danh Do-La (8.46) is hilly, rising to 112 m (366 ft) at the SW end and to **Nui Tu La (Tuta),** 102 m (336 ft) high, in the NW end.

A rock, with a depth of 0·3 m (1 ft) over it, lies 1 mile NNW of Île Double. The E extremity of **Île des Deux Passes** (20° 51′ N, 107° 19′ E), situated 8½ cables NNE of Île de l'Entrée, in line with La Mouche (8.56), 2 cables farther NNE, bearing 015°, leads W of this rock and through the entrance of the pass.

If La Mouche can not be distinguished, the rock will be avoided by passing about 3 cables E of Île de l'Entrée (20° 50′ N, 107° 18′ E).

8.55

When in a position ½ mile N of the 0·3 m (1 ft) rock just mentioned, a vessel can leave Passe de la Mouche by steering NW to join Passe du Casque, with Le Casque (8.52) bearing 313°.

Passe du Casque
(Original dated 1886)

Île Verte (8.53) lies on the SW side of this channel and L'Encrier (8.51) lies ¼ mile NW of Île Verte. A rock, which dries 0·3 m (1 ft) lies 1 cable E of L'Encrier.

8.56

Passe de la Mouche is entered between Île des Deux Passes and an islet lying 3 cables ESE. **La Mouche,** a low rock, lies 2 cables NNE of Île des Deux Passes, and **Le Parseval,** an islet, lies 9 cables farther N.

The S end of **Île des Biches,** which is fringed by a reef extending a short distance offshore, lies 1½ miles N of Île des Deux Passes. **Île Kieu** lies close NE of **Île des Biches.** A **beacon** is charted on the SE end of Île Kieu. A rock, which dries 0·3 m (1 ft), lies ½ mile N of the SE extremity of Île Kieu and close offshore. **Le Fourchu,** a hill, lies at the N end of the island.

On the E side of Passe de la Mouche, a rock, 4 m (14 ft) high, stands 3½ cables N of Île Danh Do-La (20° 51′ N, 107° 20′ E). Between this rock and Île Danh Do-La is the entrance to a channel leading into Baie de Quan Lan (8.92) and thence N into **Chenal du Lutin.**

Île Dao Trao lies 6½ cables N of Île Danh Do-La. A peninsula projects from the NW end of Île Dao Trao, on the N end of which is **Nui Say Tau,** 110 m (362 ft) high. A chain of islets extends 1 mile NNW from the NW extremity of Île Dao Trao. A 5·8 m (19 ft) patch lies in mid-channel ½ mile N of this point.

Îlot Vert lies on the E side of the channel, ½ mile E of the N end of Île Kieu. Two rocks, with depths of 1·5 m

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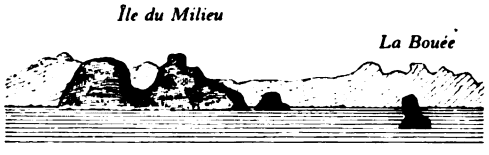
and 1·8 m (5 and 6 ft) over them, lie 2 and 3½ cables, respectively, NW of Îlot Vert.

N of the N extremity of Île Kieu, Passe de la Mouche turns NW and enters Chenal de la Saône between an island lying close NW of the N end of Île Kieu and the W extremity of **Van Duoi** (20° 55′ N, 107° 19′ E), an island ¼ mile NE.

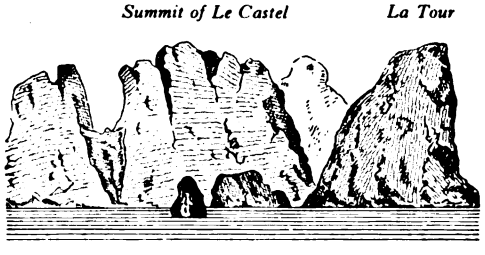
Chenal de la Saône

8.57

Chenal de la Saône, in which there is a least depth of 4·7 m (15½ ft) at its W end, is a continuation E of Chenal du Ducouedic (8.38). From a position ¾ mile ENE of Île de l'Entrée (20° 53′ N, 107° 10′ E), where Île du Milieu (8.37) is open its own width N of La Bouée, with the latter bearing 082°, the channel trends ESE for a distance of 6½ cables with L'Enclume (8.38) in line with the summit of **Le Castel,** astern, bearing 286°, passing between La Bouée and **Le Plumet Jaune,** 28 m (93 ft) high, and the E of two islets 2 cables S.

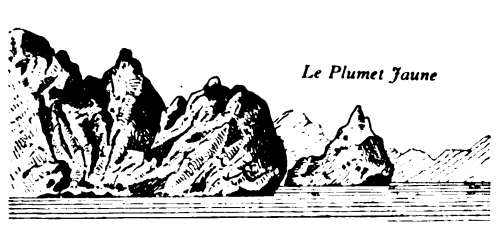


La Bouée, bearing 082°
(Original dated 1886)



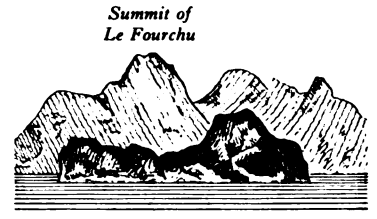
L'Enclume in line with of Le Castel, bearing 286°
(Original dated 1886)

The channel passes close N of **Pointes des Grottes** (20° 53′ N, 107° 12′ E), the N extremity of **Îles des Grottes,** which is 151 m (494 ft) high and lies ½ mile SE of La Bouée. 3 cables ESE of Pointe des Grottes, the channel continues ESE with that point in line with Le Plumet Jaune, astern, bearing 285°. This is the shallowest part of Chenal de la Saône, there being only a depth of 4·7 m (15½ ft) close N of this alignment.



Pointe des Grottes in line with Le Plumet Jaune, bearing 285°
(Original dated 1886)

When the SE extremity of **Îlot Plat,** situated 3½ cables WSW of the N end of Îles des Biches (8.56) is in line with the summit of Le Fourchu, a hill on the N end of Île Kieu, bearing 072°, maintain this alignment.



SE extremity of Îlot Plat in line with the summit of Le Fourchu, bearing 072°
(Original dated 1886)

Le Poisson, an islet 40 m (133 ft) high, lies on the S side of the channel, 2½ miles SW of Île du Milieu (8.37), which lies on the N side. Two islets lie close off the SE side of Île du Milieu.

8.58

Passe de l'Aspic (8.47) and Passe du Casque (8.52) join Passe de la Saône on this alignment 1½ and ½ mile WSW of Îlot Plat, respectively.

8.59

From a position ½ mile WSW of Îlot Plat, the channel turns NE, with the SE side of **Le Vautour** (20° 58′ N, 107° 19′ E), an islet lying ¾ mile NE of L'Aigle (8.37), in line with a **beacon** standing on the SE extremity of the E islet of **Les Aiglons,** a group of islets lying S of L'Aigle, bearing 033°. A prominent building with a red roof is situated on the SE side of Le Vautour.

Île du Chenal (8.37), which is prominent, and **La Poire** and **La Pomme,** two islets close together situated ½ mile NE of Île du Chenal (20° 56′ N, 107° 17′ E), lie on the NW side of this part of the channel. A **beacon** is reported to stand on or near the SE extremity of La Pomme.

On the S side of this part of the channel, foul ground with a number of small islets lies between Îlot Plat, the N end of the Île des Biches, and islets which extend ½ mile off the N end of Île Kieu (8.56). Passe de la Mouche (8.56) joins Chenal de la Saône between these islets and **Île Van Duoi,** ¼ mile NE. **Île Rousse** lies N of Van Duoi and is separated from it by Chenal du Roc aux Aigles (8.82). A **light** is exhibited from the W extremity of Île Rousse. A shoal, with a depth of 1·5 m (5 ft) at its outer end, extends ½ mile SW from the W extremity of Île Rousse; Chenal de la Saône lies between this shoal and La Pomme.

8.60

From a position ¼ mile E of La Pomme, the channel turns NE, with the NW extremity of Le Poisson in line, astern, with the SE extremity of the S islet lying close SE of Île du Milieu, bearing 229°, and joins Chenal du Bourayne (8.61) 1¾ miles farther NE.

On the SE side of the channel, Chenal du Kersaint (8.70) is entered from W between the N side of the W end of Île Rousse and L'Amande (8.70). **La Fourmi,** a rock, lies 1½ cables NNE of the W end of L'Amande. **La Frégate,** an islet, lies 4 cables farther NE, with an islet midway between it and La Fourmi.

Chenal du Bourayne

8.61

Chenal du Bourayne is the continuation ENE of Chenal de la Saône, and is entered from SW between La

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Frégate and Le Vautour (8.59). Chenal du Château Renaud (8.40) also joins the channel at this point. Chenal du Bourayne has a least depth of 9·1 m (30 ft) in the fairway as far as the entrance to Chenal de Cam Pha, but at the E end of the channel, 3½ miles farther ENE, where the channel leads through a group of small islets, there is a depth of 4·6 m (15 ft) in the fairway. This section of Chenal du Bourayne should not be used without local knowledge.

From abreast Le Vautour the channel leads ENE for 3½ miles with the SE extremity of La Dent (8.68) in line with Le Pouce, bearing 063°. On the SE side of this part of the channel are several islets and rocks. **L'Abeille,** an islet 4 m (14 ft) high, lies 1½ miles ESE of Le Vautour.

La Dent *Le Colosse*
Le Pouce

Le Pouce in line with SE side of La Dent, bearing 063°
(Original dated 1886)

A **light** is exhibited from a black masonry tower with white bands and the figure '10' in red on the central white band, situated on the NW side of L'Abeille.

La Ruche, a rock with a depth of 1·5 m (5 ft) over it, with an islet close SW, lies 7 cables NE of L'Abeille.

Chenal de Cam Pha

8.62

Chenal de Cam Pha leads N from Chenal de Bourayne to the port of Cam Pha which has been constructed for the export of coal from the mines in the vicinity. In 1970 Cam Pha had an estimated population of 10 000. In 1966 it was reported that there was a depth of 8·8 m (29 ft) over the bar at high water; the pilot decides the limiting draught of vessels in the circumstances which prevail.

Chenal de Cam Pha is entered between **Le Ours** (20° 59′ N, 107° 21′ E), a group of islets lying on the coastal bank 2 miles NE of Le Vautour (8.59), and Zero Buoy (small white conical) which marks the SW extremity of a bank extending 1 mile SW from **Le Bouton,** an islet 1 mile ENE of Les Ours.

L'Angle, an island, lies on the W side of the channel, 6½ cables NNE of Les Ours, on the outer edge of a bank which partly dries. The edge of this bank, E of L'Angle, is marked by a **beacon** (conical). Between L'Angle and the wharf at Cam Pha, 1½ miles N, the outer edge of this bank has depths of 5 m (16 ft) or less over it.

On the E side of the channel, **Les Lèvres,** two islands, lie 2 cables N of Le Bouton. **Le Nez,** an island with a rock close off its SW side and two islets off its NE side, lies 3 cables farther N.

In addition to Zero Buoy, already described, the E side of the channel is marked by Nos 2, 4 and 6 Buoys (green conical) from which lights may be exhibited, situated 1 cable SE, 3 cables NE, and 7 cables NNE, respectively, of the beacon off the E side of L'Angle.

8.63

Three pairs of **leading light-beacons** are established in the approach to Cam Pha.

The rear beacon of the S pair (square, white with black bands), 16 m in height, is situated on the drying bank 1 mile NE of the beacon E of L'Angle. The front beacon, of similar construction and colour but 12 m in height, is situated 4 cables SW of the rear beacon. The lights on these beacons are exhibited occasionally. In line, bearing 035°, these beacons lead from Chenal du Bourayne to a position 3½ cables NE of Les Ours.

The rear beacon of the middle pair (square, white with black bands), 18 m in height, is situated on the E bank of the wharf at Cam Pha. The front beacon, of similar construction and colour, but 15 m in height, is situated 3½ cables SSW of the rear beacon. The lights on these beacons are exhibited only on request from the pilot. In line, bearing 018°, these beacons lead between the beacon E of L'Angle and No 2 Buoy and past No 4 and 6 Buoys.

The rear beacon of the inner pair (rectangular white masonry wall, 2 m in height) is situated on the S end of Île Jaune (8.66), 6 cables N of the S end of the wharf at Cam Pha. The front beacon (square, white with black bands), 19 m in height, is situated 45 m S of the rear beacon. The lights on these beacons are exhibited only on request from the pilot. In line, bearing 357½°, these beacons lead through the N part of the channel to the wharf and inner anchorage.

Cam Pha

8.64

Pilotage is compulsory for the port of Cam Pha. The pilot will board at Zero Buoy at the entrance to Cua Nam Trieu (7.76), and disembark at Le Cancrelat (8.51).

In 1984 it was reported that pilots for Port Cam Pha boarded ½ mile WSW of L'Orange Islet (8.19).

Tidal streams in the approach to Cam Pha are strong and set in the direction of the channel. Abreast the wharf the S-going stream attains a rate of 3 knots.

Directions for Cam Pha. From a position where Chenal de Cam Pha branches off from Chenal du Bourayne, proceed along the alignments of the three sets of leading light-beacons taking care to avoid a 5·8 m (19 ft) rock on the W side of the channel, 3 cables S of the wharf, until abreast the wharf and then either make fast to the wharf or proceed to the anchorage.

Anchorage with good holding ground may be obtained in the N part of the channel in depths from 6 to 10 m (20 to 33 ft), but there is little swinging room.

The wharf at Cam Pha is situated at the W entrance point of the port (21° 02′ N, 107° 22′ E). It is a concrete wharf, 320 m in length with a reported depth of 9·1 m (30 ft) alongside. Two 10 000 ton vessels can be berthed alongside and loaded simultaneously. A smaller wharf, 55 m long with a depth of 4·0 m alongside, situated SW of the main wharf, is used by barges and light-draught vessels.

8.65

Facilities. Four transporter cranes, two for each vessel, enable vessels to be loaded at a rate of 3500 to 4000 tons per day. There are two steam cranes of 8 ton capacity on the smaller wharf.

A 500 hp tug is available to assist in berthing.

Small repairs can be undertaken at the Mining Company's workshops.

The custom house official also acts as Port Medical Officer. In case of accident a private infirmary can give first aid.

Supplies. Fresh water is laid on to the main wharf and can be delivered at 15 tons per hour, but the quantity is limited.

Communications. There is regular communication by small vessels with Haiphong and Mong Cai (8.127).

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8.66

Inside the port of Cam Pha, the SW extremity of **Dao Cai Bau** lies 1¼ miles NNE of the S end of the main wharf. **Île Verte,** with a rocky patch 1 cable E of it, lies 2 cables SSW of this point. A drying spit, on which is a rock, 1 m (3 ft) high, extends ½ mile S from Île Verte.

A rock with a depth of 3·7 m (12 ft) over it, lies 3½ cables N of the S end of the wharf and ½ cable offshore.

Île Jaune, 6 cables N of the S end of the wharf at Cam Pha, divides Chenal de Cam Pha into two. **Cua Ong** is the W channel and **Cua Dong** the E, which leads between Île Jaune and Île Verte. A buoy (conical; red and white) is moored on the W side of the channel, 1½ cables NW of Île Verte.

Île Parseval, 113 m (372 ft) high, lies close N of Île Jaune.

The channel, N of the port of Cam Pha, leads towards Tien Yen (8.120), 17 miles N, and is suitable for shallow draught vessels only, at high water (chart 3990).

INNER CHANNELS IN NORTHERN PART OF ARCHIPEL DES FAI TSI LONG

Chart 3990

8.67

Several channels, some of which are linked by subsidiary channels, lead between the islands in the N part of the archipelago. These channels offer considerable advantages, during the NE Monsoon, and most of them can be used by small vessels of shallow draught with local knowledge. There are few navigational aids and most of the dangers are unmarked. However, most of these channels have depths of not less than 4·3 m (14 ft) in the fairway except at the N end of Chenal du Duchaffaut (8.80), where there is a bar with a depth of 3.0 m (10 ft) over it; but the bar can be avoided by proceeding to the open sea by Passe des Bruyères (8.112) and Tsieng Mun.

Chart 3875

Chenal du Bourayne (*continued*)

8.68

To the E of the entrance to Chenal de Cam Pha (20° 59′ N, 107° 21′ E), Chenal du Bourayne (8.61) continues ENE for 3½ miles to join Chenal du Duchaffaut (8.73).

On the SE side of the channel, a group of islets and rocks extends NE for 3 miles. **Le Hoggar,** an islet at the SW end of the group, lies 8 cables ENE of La Ruche (8.62). **Le Lézard,** an islet marked by a **beacon,** lies ½ mile SW of Le Hoggar. **Le Bourgois** and **La Molaire,** islets, lies 2½ and 7½ cables, respectively, NE of Le Hoggar and are connected to it by a shallow bank. **Le Navet,** an island, lies ¾ mile NE of La Molaire and at the NE end of the group is an island, 87 m (284 ft) high.

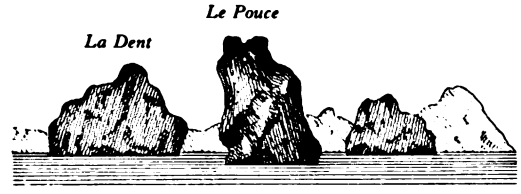
On the NW side of the channel, **La Dent** (21° 00′ N, 107° 23′ E), an islet at the S end of a small group extending 7 cables ENE, is situated ½ mile WNW of Le Navet. **Le Pouce,** a rock 23 m (77 ft) high, is situated at the NE end of this group, 6½ cables ENE from La Dent. An islet, 41 m (136 ft) high, lies 1 cable NNE of Le Pouce.

The shallowest part of Chenal du Bourayne is SE of Le Pouce. A shoal, with a depth of 4·6 m (15 ft) over it, lies on the N side of the fairway ½ cable SE of Le Pouce and another shoal, with a depth of 4·0 m (13 ft) over it, lies on the SW side of the fairway ¾ cable farther SE. However, a depth of 4·6 m (15 ft) can be carried through this part of the channel.

From a position 2 cables ENE of Le Pouce, **Coupure de Bourayne,** the name given to the E part of Chenal du Bourayne, leads over a bank for about 1 mile to join Chenal du Duchaffaut.

8.69

Directions for Chenal du Bourayne. After passing the entrance to Chenal de Cam Pha, continue ENE with the SE extremity of La Dent in line with Le Pouce bearing 063°, see view in 8.61. When 2 cables NW of La Molaire, the channel turns more E for ½ mile to pass S of La Dent and then again NE to pass close SE of Le Pouce. From a position 2 cables ENE of Le Pouce, steer ENE with Le Pouce, astern, bearing 251°, seen between La Dent and another islet to N, to join Chenal du Duchaffaut 1 mile farther on.



Le Pouce, bearing 251°, between two islands
(*Original dated 1886*)

Chenal du Kersaint

8.70

Chenal du Kersaint branches off Chenal de La Saône, 3 cables NW of the W end of Île Rousse (8.59), and trends E between the N side of that island and the islets lying N of it. The channel, which has a least depth in the fairway of 7·3 m (24 ft), then turns NE to join Chenal du Duchaffaut (8.73).

L'Amande (20° 57′ N, 107° 20′ E), an island on the N side of the channel, lies ¼ mile N of the N side of Île Rousse. A rock, with a depth of 3·7 m (12 ft) over it, marked on its SE side by a buoy (black conical; cylinder top mark), lies near the middle of the channel, 1 cable S of L'Amande. **La Limace,** an island, lies 8½ cables ENE of L'Amande, and **Le Doight,** an above-water rock, is situated 4 cables E of the N end of La Limace.

Some shoals, which partly dry, lie on the S side of the channel, ½ mile S and SSW of La Limace and 2 cables off the N side of Île Rousse. The channel turns NE abreast these shoals.

Le Capitole, an islet, lies on the NW side of the channel 1 mile NE of La Limace; **Île Boisée** lies 2 cables N of Le Capitole. The SE entrance of a channel (8.89) connecting Chenal de Cam Pha and Chenal du Bourayne with Chenal du Kersaint lies between Île Boisée and **La Toque,** a rock 4 cables ENE. **Le Buisson,** a detached rock, lies on the NW side of the channel, 4½ cables NE of La Toque.

8.71

On the SE side of the channel, some detached reefs lie close off the N extremity of Île Rousse and a rock, with a depth of 4·6 m (15 ft) over it, lies 2 cables N of the same point. **La Licorne,** an islet 78 m (257 ft) high, lies 7 cables NE of Île Rousse. **Basse de la Licorne,** with a depth of 2·7 m (9 ft) over it, lies 1 cable W of La Licorne and a spit, with depths of less than 5 m (16 ft) over it, extends ¼ mile WSW from the islet.

The channel which connects Chenal de Cam Pha and Chenal du Bourayne with Chenal du Kersaint, mentioned in 8.70, continues ENE between the NE end

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of Île Rousse and La Licorne to join Coupure du Colosse (8.89).

L'Index du Kersaint (20° 59′ N, 107° 25′ E), an island 109 m (356 ft) high, lies 1¼ miles NE of La Licorne, with several islands and rocks between, the largest of which is **L'Aiglon,** 119 m (389 ft) high, 3 cables from La Licorne.

Le Dôme, an island 123 m (405 ft) high, lies ½ mile NE of L'Index du Kersaint, with shallow water between. An islet, 40 m (130 ft) high, lies 1 cable N of Le Dôme.

A rocky shoal, which dries 3·4 m (11 ft), lies 4 cables N of Le Dôme. This shoal is marked by a beacon (tower shaped; red and black bands; spherical topmark), 3 m in height. Chenal du Kersaint connects with the SW end of Chenal du Duchaffaut and is joined by the NE end of Coupure du Bourayne (8.68) 1½ cables W of the above shoal.

8.72

Directions for Chenal du Kersaint. When entering from W leave Chenal de le Saône when about ½ mile N of the W extremityof Île Rousse, with the S extremity of **L'Escalier,** bearing 270° astern, just open N of the N extremity of La Pomme (8.59). L'Escalier is the SW islet of a group and lies 1¼ miles W of La Pomme. This alignment must be closed, to bring the two points into line astern to pass S of the buoy marking the 3·7 m (12 ft) rock 1 cable S of L'Amande.

La Pomme *L'Escalier*

L'Escalier, bearing 270°, just open N of the N extremity of La Pomme
(Original dated 1886)

When abreast the shoals S of La Limace, steer NE with the summit of Le Colosse (8.74) bearing 051°, until 2½ cables NW of Le Dôme, thence steer a more N course to pass 1½ cables W of the beacon situated 4 cables N of Le Dôme.

Chart 3990

Chenal du Duchaffaut

8.73

Chenal du Duchaffaut is a continuation of Chenal du Kersaint and leads NNE between the islands and rocks lying off the SE side of Dao Cai Bau for a distance of 6 miles and then follows the SE coast of that island, keeping about ½ mile offshore as far as the S entrance point of Cua Mo (8.118), 10 miles farther NE, where it gives access to the sea. There is a bar off the last mentioned point, over which there is a least depth of 4·6 m (15 ft), which is the shallowest part of the channel.

8.74

Chenal du Duchaffaut leads NE between **Le Colosse** (21° 01′ N, 107° 26′ E), an island 222 m (727 ft) high, situated 6 cables NE of the beacon on the shoal which dries 3·4 m (11 ft) (8.71), and **Le Maillet,** another island, 63 m (208 ft) high, ½ mile W. The channel continues NNE to pass E of **Île aux Trois Sommets,** 146 m (480 ft) high, situated 1 mile N of Le Colosse.

Several islets lie on the *NW side* of the channel between Le Maillet and Île aux Trois Sommets, with depths of less than 5 m (16 ft) between them.

On the SE side of the channel, a bank with depths of less than 5 m (16 ft) lies between Le Colosse and **Île du Chenal,** 1¾ miles NNE. **Roche du Colosse,** which dries 0·6 m (2 ft), lies on this bank 7 cables NNE of Le Colosse. A buoy (red conical) is moored ¼ mile E of Île Aux Trois Sommets and marks the NW edge of the bank.

8.75

From abreast Île aux Trois Sommets the channel leads more N to a position 3 cables NW of Île du Chenal; it then continues NE for 3 miles to pass between **L'Isolé** (21° 06′ N, 107° 29′ E), an islet 44 m (146 ft) high, situated near the edge of the coastal bank, and a rock, 2½ m (8 ft) high, 1 cable SE. On the NW side of this stretch of the channel, **Le Marron,** a cluster of rocks, the highest being 19 m (64 ft) high, lies 6½ cables NW of Île du Chenal. **Le Doigt,** 63 m (208 ft) high, and the S islet of a small group, lies 6½ cables NNE of Le Marron. **Rocher de la Pointe,** 15 m (48 ft) high, lies on the edge of the coastal bank 1 mile NE of Le Doigt.

On the SE side of the channel the shallow bank, with depths of less than 5 m (16 ft) over it, continues NE from Île du Chenal for 5 miles and separates Chenal du Duchaffaut from Chenal du Lynx (8.86), about 1 mile SE. **Île aux Eboulis,** 96 m (316 ft) high, lies 2 cables NE of Île du Chenal. **Île Buisson Noir,** 108 m (356 ft) high, is the SW islet of a chain extending 2 miles NE on the shallow bank, and lies 1½ miles NE of Île aux Eboulis. A buoy (red conical) is moored 9 cables SW of Île Buisson Noir and marks the W edge of the bank.

8.76

After passing between L'Isolé and the rock 2½ m (8 ft) high SE of it, the channel continues NE. **Basse de l'Isolé,** with a depth of 2·7 m (9 ft) over it, lies 3 cables ENE of L'Isolé. A buoy (red conical) marks the NW edge of the shallow bank 6½ cables NE of L'Isolé. **Île Noir,** 85 m (280 ft) high, lies on the shallow bank 11 cables ENE of L'Isolé.

Les Donjon (21° 07′ N, 107° 31′ E), 89 m (290 ft) high, with **Le Pâté,** 84 m (274 ft) high, 2 cables SW of it, lies on the NE extremity of the shallow bank separating Chenal du Duchaffaut from Chenal du Lynx, which join together 1 mile NE of Le Donjon.

8.77

Cai Bau (Ké Bao), a village where there is an outcrop of coal, stands on the SE side of **Dao Cai Bau (Île de Ké Bao),** 1 mile WNW of Le Donjon. The mouth of a river, the bar of which dries, is situated close S of the village. Cai Bau is connected by railway with Port Wallut (8.119).

8.78

Between Cai Bau and the S entrance point of Cua Mo (8.118), 8 miles NE, Chenal du Duchaffaut follows the coast, keeping about ½ mile offshore. **Île Bourayne,** 16 m (54 ft) high, is situated 2¼ miles NE of Cai Bau and 1 cable offshore. **Baie du Chat** is entered through a narrow channel, 2 cables W of Île Bourayne. **Île Duchaffaut,** 26 m (84 ft) high, lies 3 cables NE of Île Bourayne, and a reef, on which there is some islets, extends 3½ cables NE.

8.79

On the SE side of the channel, **Île aux Bambous,** 238 m (782 ft) high, lies 1¾ miles ENE of Le Donjon. **Le Panier,** a rock 10 m (34 ft) high, lies ¼ mile off the W side of Île aux Bambous.

Anchorage may be obtained between the W side of Île aux Bambous and Dao Cai Bau.

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Île aux Bambous is separated from **Île aux Bruyères,** 76 m (251 ft) high, by **Petit Passe des Bruyères,** which is 1 cable wide between the latter island and a reef with above-water rocks on it, extending 1 cable N from Île aux Bambous. Two above-water rocks lie on a reef extending 1½ cables NNE from the N end of Île aux Bruyères.

Passe des Bruyères (8.112) enters the channel close NE of Île aux Bruyères.

Île Longue lies 2 miles NE of Île aux Bruyères, and a bank extends 1½ miles SW and 1 mile W and NW to form the SE side of the fairway of this part of Chenal du Duchaffaut.

Tidal streams between Dao Cai Bau and Île Longue. The SW-going stream attains a rate of nearly 1½ knots between 2 and 3 hours after high water locally.

8.80

The NW side of Chenal du Duchaffaut, NE of Île Duchaffaut (8.78), is formed by a mountainous peninsula which juts out from the NE side of Dao Cai Bau. **Sommet Double,** 423 m (1389 ft) high, is the highest part of the peninsula and lies 2½ miles SW of its NE extremity, which forms the S entrance point to Cua Mo (21° 13′ N, 107° 36′·5 E) (8.118).

A rock, with a depth of 4·3 m (14 ft) over it, lies near the fairway, 1½ miles SSW from the S entrance point of Cua Mo and 3 cables offshore. This point is joined to the NW extremity of the bank extending from Île Longue by a bar of mud and sand over which there is a channel ½ mile wide, with a least depth of 4·6 m (15 ft) in the fairway; the channel is marked by a buoy (black can), moored 2¾ cables SE of the point.

8.81

Directions for Chenal du Duchaffaut. When entering from SW, pass 1 cable NW of the beacon 6 cables SW of Le Colosse, steering with L'Isolé (8.75) bearing 033° and open NW of an islet lying close W of Île aux Éboulis.

L'Isolé *Île aux Éboulis*

L'Isolé, bearing 033°, open NW of Île aux Éboulis
(Original dated 1886)

When 2½ cables SW of Île aux Trois Sommets, steer more N, to pass 2 cables SE of that island, and NW of the buoy marking the edge of the shallow bank on the SE side of the channel (8.74).

When midway between Île aux Eboulis and Le Marron, steer more NE again with L'Isolé bearing 037°, passing NW of the buoy ½ mile E of Le Doigt; and finally between L'Isolé and a rock 2½ m (8 ft) high, 1 cable SE of it, thence steer with Rocher de la Pointe (8.75) in line with L'Isolé, astern bearing 236°, keeping about ½ mile

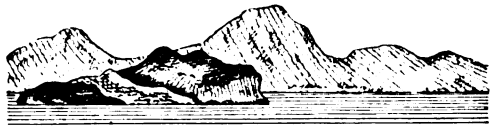
L'Isolé, bearing 037°
(Original dated 1886)

L'Isolé

L'Isolé in line with Rocher de la Pointe, bearing 236°
(Original dated 1886)

off the SE coast of Dao Cai Bau and passing close NW of the buoy ¾ mile NE of L'Isolé.

When 1¼ miles ENE of Île Duchaffaut, keep the SE extremity of Île de la Plage (21° 14′ N, 107° 38′ E) (8.117) in line with the partially wooded summit of Île du Grand Singe, bearing 035°, which leads close SE of the 4·3 m (14 ft) rock 1½ miles SSW of the S entrance point of Cua Mo. When clear of this rock steer to pass 2 cables E of the above-mentioned point and close to the buoy marking the channel over the bar.



Île de la Plage *Île du Grand Singe*

The partly-wooded summit of Île du Grand Singe in line with the SE extremity of Île de la Plage, bearing 035°
(Original dated 1886)

Chenal du Roc aux Aigles

8.82

Chenal du Roc aux Aigles branches off from Chenal de la Saône, 1 mile SW of the W extremity of Île Rousse (20° 56′ N, 107° 18′ E); it leads E between that island and **Van Duoi** to S, and along the NW side of Île Longue to join Chenal du Lynx (8.86). A depth of 8 m (26 ft) can be carried through this channel.

8.83

Banks, with depths of less than 5 m (16 ft) over them, extend ½ mile W from the W extremities of both Île Rousse and Van Duoi. A spit, with depths of less than 5 m (16 ft) over it, extends 2 cables from the NE side of Van Duoi.

Île Boise, 37 m high, lies on the S side of the channel ¾ mile E of Van Duoi, and foul ground extends 7 cables NNE from it. A **beacon,** reported destroyed, is situated on a rock which dries 0·6 m (2 ft) at the outer end of the foul ground. **Le Moustique,** an above-water rock, lies 8½ cables NE of Île Boise. **La Brioche,** an islet 91 m high, lies 1½ miles ENE of Le Boise. All these dangers lie on the S side of the channel.

On the N side of the channel, Le Coin is the SE islet of a group lying off the E side of Île Rousse and is situated 3½ cables N of La Brioche. **La Carotte,** 164 m (539 ft) high, is the largest island of the group and lies 6 cables NW of Le Coin with **Le Canard,** another island, between. Depths of less than 5 m (16 ft) extend 1 mile WSW from Le Coin.

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8.84

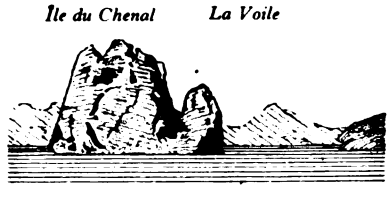
Île Longue, which is mountainous and reaches an elevation of 300 m (986 ft), forms the SE side of the N end of Chenal du Roc aux Aigles. **Le Roc aux Aigles** (20° 57′ N, 107° 25′ E) is a steep hill, 194 m (638 ft) high, situated on the NW side of Île Longue, 1¾ miles NE of La Brioche. **Le Lapin,** a rock 38 m (126 ft) high, lies 2 cables W of Le Roc aux Aigles, and the channel passes between them.

La Hache, 173 m (569 ft, charted 651 ft) high, is the S islet of a group lying off the NW side of the N extremity of Île Longue and is situated 1 mile NE of Le Lapin. **Île Plate,** 108 m (356 ft) high with another islet close NE of it, lies 1¼ cables NW of the N end of Île Longue. **L'Enclume** (20° 59′ N, 107° 26′ E), 136 m high, lies ¼ mile NW of Île Plate at the NE end of the group.

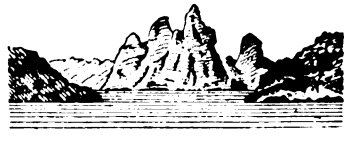
Chenal du Roc aux Aigles passes SE of La Hache, and between L'Enclume and the islet close NE of Île Plate, where it joins the S end of Chenal du Lynx (8.86) and Chenal de la Carabine (8.90).

8.85

Directions for Chenal du Roc aux Aigles. Enter from W midway between the banks extending W from the W ends of Île Rousse and Van Duoi with Île du Chenal (20° 56′ N, 107° 17′ E) (8.37) just open S of La Voile (8.37), bearing 269° astern. When clear of these banks, keep midway between Île Rousse and Van Duoi with La Poire, bearing 285° astern.

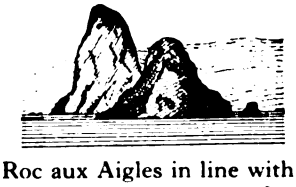


Île du Chenal just open S of La Voile, bearing 269°
(Original dated 1886)



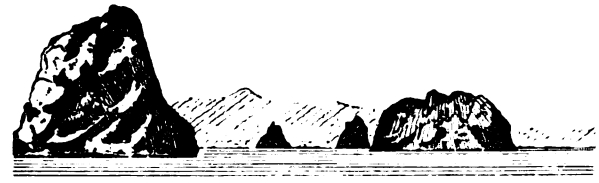
La Poire bearing 285°
(Original dated 1886)

From a position 2½ cables NW of Île Boise the channel turns NE with the NW extremity of Le Coin in line with the summit of Le Roc aux Aigles, bearing 064°, which leads NW of the rock, marked by a beacon (reported destroyed), 6 cables NE of Île Boise.



Summit of Roc aux Aigles in line with NW side of Le Coin, bearing 064°
(Original dated 1886)

When 3½ cables NW of Le Moustique, steer for La Brioche until 2 cables W of it and thence steer more to N to pass between Le Lapin and Le Roc aux Aigles, with the SE extremity of La Hache in line with La Souris (8.86) bearing 042°. When 2 cables SSW of La Hache steer to pass between that island and Île Plate and thence enter Chenal du Lynx W of L'Enclume.



Chenal du Roc aux Aigles
(Original dated 1886)

Chart 3990

Chenal du Lynx

8.86

Chenal du Lynx, which has a least charted depth of 5·8 m (19 ft), leads NNE from the NE entrance of Chenal du Roc aux Aigles, and between **L'Isolé** (21° 00′ N, 107° 27′ E), an islet 48 m (159 ft) high, situated ¾ mile NNE of L'Enclume, and **Le Gamin,** a rock 19 m (61 ft) high, 6 cables E of L'Isolé. **La Souris,** a prominent rock 30 m high, lies 1 mile E of L'Isolé. **Le Gland,** a rock 4 m (17 ft) high and difficult to distinguish, lies on the W side of the channel, 4 cables N of L'Isolé.

After passing Le Gamin the channel continues NNE for 3½ miles to a position close E of **Île du Coude** (21° 03′ N, 107° 28′ E). It passes close E of a group of islets lying close together on the W side of the channel 1 mile N of Le Gamin. The channel continues for 5½ miles NE past Île du Coude along the E side of the shallow bank separating it from Chenal du Duchaffaut (8.74) about 1 mile NW, until these two channels join 1 mile NE of Le Donjon (8.76). **Île Rond** and **Le Lion,** an islet 96 m (316 ft) high, lie on the E side of this bank, 1 mile and 2¾ miles NNE, respectively, of Île du Coude.

On the E side of the channel **Île du Sud,** 51 m (169 ft) high, lies 1 mile NE of Le Gamin, and is the SW islet of a chain which separates Chenal du Lynx from Chenal de la Carabine (8.90). **La Boule** is the W islet of the chain and lies 1 mile N of Île du Sud. **Île de la Saône,** 158 m (520 ft) high, lies on the E side of the channel 2½ miles NNE of La Boule, with **Le Nègre,** 56 m (185 ft) high midway between.

Récif de l'Echelle, which dries 2·4 m (8 ft), lies on the W side of the channel 4 cables W of Île de la Saône. A **beacon,** reported destroyed, stands on this rock.

Le Grand Île (21° 04′ N, 107° 30′ E), 211 m (694 ft) high at its W end, lies 3 cables NE of Île de la Saône. **Le Chat,** 58 m (192 ft) high, lies in the middle of the fairway 3 cables N of the W end of Le Grande Île. **Le Chameau,** 47 m (156 ft) high, lies 2 cables NE of Le Grande Île, and **L'Encrier,** 37 m (123 ft) high, lies 3½ cables farther NNE. **La Taupiniere,** 38 m (126 ft) high, and **Île Verte,** 94 m (310 ft) high, are two islets lying close SE of Le Grande Île.

Le Diadème, an islet 89 m (293 ft) high lies, on the E edge of the channel 1 mile NNE of Le Grand Île with several islets and rocks between them. **Basse du Diadème,** with a depth of 5·2 m (17 ft) over it, lies 3 cables NW of Le Diadème, and **Basse du Lynx,** which is marked by a **beacon** (tower-shaped; red and black bands; spherical topmark), lies 2½ cables W of Basse du Diadème.

Le Castel, an islet 109 m (359 ft) high, lies on the E side of the N entrance to Chenal du Lynx, 8 cables E of Le Donjon (8.76).

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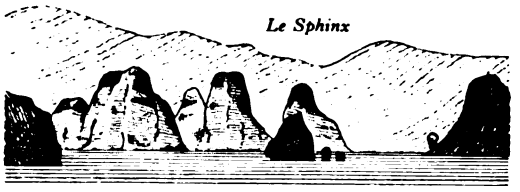
8.87

Directions for Chenal du Lynx. On leaving Chenal du Roc aux Aigles, steer to pass midway between L'Isolé and Le Gamin thence proceed NNE, close past the group of islets N of Le Gamin with Îlot Rond in line with **Le Sphinx,** bearing 018°. Le Sphinx is an islet situated 8 cables NNE of Îlot Rond.



Îlot Rond in line with Le Sphinx, bearing 018°
(Original dated 1886)

When 1 cable E of Île du Coude the channel leads NE for 2 miles with the NW extremity of Le Castel in line with the SE extremity of Le Chat, bearing 046°. When ¼ mile from Le Chat, alter course to round that islet, keeping ½ cable from its E side, and, from a position ¼ mile NE of Le Chat, the channel continues NE with the SE extremity of Le Chat in line with the SE extremity of Île du Coude, bearing 226° astern.

NW extremity of Le Castel in line with the SE extremity of Le Chat, bearing 046°
(Original dated 1886)

After passing between Basse du Diadème and Le Diadème, the channel turns more NNE and passes between Le Donjon and Le Castel, with L'Encrier in line with Le Chameau, bearing 199° astern, to join Chenal de Duchaffaut 1 mile NE of Le Donjon.

8.88

Chenal de l'Île Coupée, which is only suitable for shallow draught vessels with local knowledge, branches off from Chenal du Lynx close NW of La Boule (21° 01′·5 N, 107° 28′ E) and leads between the shoals extending from the SW end of **Île Madeleine,** E of La Taupiniere and L'Encrier to rejoin Chenal du Lynx 1 mile S of Le Donjon.

Chart 3875

Coupure du Colosse

8.89

There is a channel which leads E from the entrance to Chenal de Cam Pha (20° 59′ N, 107° 21′ E) across Chenal du Bourayne to Chenal du Kersaint. It passes NE of La Ruche (8.62), between **Le Lézard,** an islet marked by a **beacon,** ½ mile E of La Ruche, and Île Boisée, and S of Le Toque (8.71).

Coupure du Colosse is a continuation of this channel, which leads ENE to join Chenal du Lynx.

Leaving Chenal du Kersaint in a position 3 cables NW of the N extremity of Île Rousse, Coupure du Colosse leads S of La Licorne (8.71) where it turns NE to pass between **La Clef,** an islet 59 m (195 ft) high, situated 1 mile ENE of La Licorne, and another islet 2 cables N. When 4 cables NE of La Clef the channel turns ENE to join Chenal du Lynx, 2 cables E of L'Isolé (8.86).

Chart 3990

Chenal de la Carabine

8.90

Chenal de la Carabine is a continuation NE of Coupure du Colosse (8.88), and leads into Chenal de la Surprise N of Île de la Table (8.94).

The channel is entered from Chenal du Lynx from a position E of L'Isolé (8.86) and passes between Le Gamin and La Souris. Vessels approaching from S through Chenal de Roc aux Aigles can pass SE of La Souris, and those approaching from N, through Chenal du Lynx should keep Le Gland (8.86) in line, astern, with the NE peak of **Le Triangle,** bearing 284°, in order to clear the bank extending SW from Île du Sud (21° 01′ N, 107° 28′ E). Le Triangle is an islet, 98 m (323 ft) high, situated 2½ miles WNW of Le Gland.

From a position 2 cables NE of La Souris, Chenal de la Carabine divides into two channels named Chenal Nord and Chenal Sud, separated from each other by three islets lying on a bank situated about ½ mile off the NE side of Île de la Table. **La Meurtrière,** 73 m (241 ft) high, is the S islet and lies 2½ miles NE of La Souris. **La Chimère,** 95 m (313 ft) high, and **Le Shako,** 43 m (142 ft) high, are the other two islets lying 1 mile and 1¼ miles NE, respectively, of La Meurtrière. A rock, with a depth of less than 2 m (6 ft), lies 2 cables SW of La Meurtrière.

Chenal Nord, which has a least depth of 6·7 m (22 ft) in the fairway, lies on the NW side of the bank just described and SE of the chain of islets lying on the bank extending SW from Île Madeleine. **La Fourmi,** 5½ m (18 ft) high and **Le Lièvre** (21° 02′ N, 107° 29′ E), are two islets of this chain which lie close to the NW side of the fairway ½ and 1½ miles NE, respectively, of Île du Sud. **Le Caméléon,** an islet 84 m (277 ft) high, lies 3 cables NW of La Fourmi.

La Touffe, an islet 13 m high with a white rock on its S end, lies in the N part of Chenal Nord, 1¼ miles NE of Le Shako. The main channel leads S of La Touffe but vessels with local knowledge can pass N of it, keeping 150 m offshore. A shoal, with a least depth of 0·9 m (3 ft) over it, lies 1½ cables S of La Touffe.

From La Touffe the channel leads E along the N end of Île de la Table and S of **Le Château-Fort** (21° 03′ N, 107° 33′ E), situated 8 cables E of La Touffe, and **Île Plate,** 1½ cables farther ESE, to join Chenal de la Surprise 1 mile E of Le Château-Fort.

8.91

Tidal streams in Chenal de la Carabine run in the direction of the channel. At the SW end near Le Gamin they attain a rate of ½ knot, and at La Meurtrière the maximum rate is reached at high and low water locally. Near the NE entrance to the channel, the stream attains a rate of 1½ knots. Violent eddies may be experienced between La Touffe and the NE entrance.

Directions for Chenal de la Carabine. Leave Chenal du Lynx E of L'Isolé (8.86) and pass midway between Le Gamin and La Souris. When 3 cables NE of La Souris steer with a notch near the summit of Roc aux Aigles (8.84) in line with the NW edge of Île Plate, bearing 223° astern, which will lead past La Fourmi and Le Lièvre.

After passing Le Lièvre, the channel takes a more E direction, with the SE extremity of Le Lièvre in line with the SE extremity of Le Caméléon, bearing 238° astern.

From a position 6 cables NE of Le Shako, the channel turns E with the S extremity of Le Château-Fort in line with Le Huron, bearing 083°. **Le Huron** is an islet, 26 m (87 ft) high, situated 1½ miles E of Le Château-Fort; it is

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inconspicuous in the morning in fine weather. This leads S of La Touffe and between that islet and the shoal with a least depth of 0·9 m (3 ft), 1½ cables S of it.

When 3 cables E of La Touffe, steer with the white rock on the S end of it, bearing 274° astern, and join Chenal de la Surprise 1½ miles farther on.

8.92

Chenal Sud leads SE of La Meurtrière and rejoins Chenal Nord off La Touffe. It has a least depth of 4·6 m (15 ft) and should only be used by vessels with local knowledge.

Chart 3875

Baie de Quan Lan

8.93

Baie de Quan Lan is entered from SE between Cap Quan Lan (20° 49′ N, 107° 28′ E) (8.43) and the NE extremity of Fong Wong (8.44), 3 miles WSW. Lai Tao and the other islands and dangers in the approach to the bay are described in 8.43 to 8.46. The bay is very shallow and should only be entered by vessels of very shallow draught with local knowledge.

There is a channel leading into Passe de la Mouche (8.54) from the NW corner of the bay, into **Chenal du Lupin** in the N end of the bay and into Chenal du Jaguar (8.96) inthe NE corner of the bay. **Îlot Blanc** (20° 53′ N, 107° 24′ E) situated in the N part of the bay is a useful mark.

Charts 1965, 3990

Île de Quan Lan, with **Cap Quan Lan,** its S extremity, is hilly and rises to an elevation of 183 m (602 ft) 2 miles NNE of that point. **Sommet de l'Entrée,** 100 m (329 ft) high, is situated at the N end of the island.

Chenal de la Surprise

8.94

Chenal de la Surprise is entered from S between the N end of Île de Quan Lan and the S end of Dao Ba Mun, 3 cables NE. The entrance, named **Pak Ha Mun,** can be identified by Sommet de l'Entrée and **La Bosse,** a hill 218 m (717 ft) high at the S end of Dao Ba Mun, 9 cables NE. **Sommet Pak Ha Mun** (21° 00′ N, 107° 31′·5 E), 399 m (1310 ft) high, situated 2½ miles NNW of the entrance, and **La Table,** the flat summit of **Île de la Table,** 2½ miles WSW of the entrance, can also be identified.

Chenal de la Surprise with a least depth of 5·8 m (19 ft) in the fairway, leads N from Pak Ha Mun, along the W side of Dao Ba Mun to Tsieng Mun (8.111) 10½ miles NNE.

8.95

Dao Ba Mun is the NE island of Archipel des Fai Tsi Long; its summit, **Le Piton,** 305 m (999 ft) high, lies 2½ miles SSW of Pointe de Tsieng Mun (8.98), the N extremity of the island.

Within Pak Ha Mun, Dao Ba Mun is high and densely wooded, and Île de la Table, which is also high, has grassy slopes topped by clumps of trees.

Le Fer à Cheval, a group of black jagged rocks, lie 1 mile NW of the entrance; they are prominent against the sandy beach on the E side of Île de la Table.

8.96

Chenal du Jaguar is entered at its NE end between Pak Ha Mun and Le Fer à Cheval, and leads SSW to join the NE corner of Baie de Quan Lan (8.92). The navigable channel at the NE end has depths of 0·3 to 1·5 m (1 to 5 ft) making Chenal du Jaguar only suitable for vessels of shallow draught with local knowledge.

8.97

Anse du Pirate, which is shallow, is entered between a point 3 cables NW of La Bosse and **Pointe Ducouedic,** 9 cables N. A narrow sandbank, with depths of less than 3 m (10 ft) over it, extends S for 1¼ miles from **La Tortue,** an islet 27 m (90 ft) high, situated 7 cables NW of Pointe Ducouedic, leaving a narrow channel between its S end and Île Ba Mun to E.

Tidal streams in Pak Ha Mun and close inside are strong and the sea is rough during the NE Monsoon.

Anchorage may be obtained between Le Fer à Cheval and the narrow sandbank, which lies 4 cables E, in depths of 10 to 12 m (33 to 39 ft). A more sheltered anchorage can be obtained E of this sandbank abreast the entrance to Anse du Pirate in 6 to 7 m (19 to 24 ft), mud, where the holding ground is good.

Directions. Vessels entering Pak Ha Mun from seaward should approach the entrance with Sommet Pak Ha Mun bearing 313° and when through the entrance proceed to the chosen anchorage.

Chart 3990

8.98

On the W side of Chenal de la Surprise, N of La Tortue, **Le Poisson-lune,** an islet 19 m (64 ft) high, lies near the edge of the fairway 3 cables NNE of La Tortue. **La Gourde** (21° 02′·5 N, 107° 33′·5 E), an islet 46 m (152 ft) high with **La Pierre Taillée,** another islet 56 m (185 ft) high 1 cable SW, lies 1½ miles N of Le Poisson-lune and is the S entrance point of the NE end of Chenal de la Carabine (8.90). **Le Cône,** an islet 56 m (185 ft) high, lies ½ mile N of La Gourde, and **Petite Îlot Boise** lies ½ mile NNW of Le Cône.

In the fairway of the N part of Chenal de la Surprise there is a least depth of 5·8 m (19 ft) and depths of not less than 4·9 m (16 ft) for a distance of ½ cable on either side. **La Tour** (21° 04′ N, 107° 34′ E), 135 m (444 ft) high, is the S island of a chain of islands lying close to the W side of the fairway, 1½ miles NNE of La Gourde. **Grand Îlot Boise** lies close W and **L'As de Trefle,** an islet 46 m (152 ft) high, lies 1¼ cables N of La Tour. An islet, 26 m high with a white patch on its S end, lies close off the NW extremity of La Tour. Other islands of this chain which lie close to the fairway are **Île Noire,** 135 m (444 ft) high 1 mile NNE of La Tour, and **Le Potiron,** 95 m (313 ft) high close N of Île Noire. **Les Jumeaux,** 62 m (205 ft) high, lie midway between Le Potiron and **Île du Doigt,** 99 m (326 ft) high, 1½ miles NE. Several islets lie close together NE of Île du Doigt, the NE of which is situated 1 mile W of **Pointe de Tsieng Mun** (21° 08′ N, 107° 37′ E), the N extremity of Dao Ba Mun; **Rocher Tsieng Mun,** 47 m (156 ft) high, lies 1 mile WNW of this point.

8.99

On the E side of the middle part of the channel, a shoal with depths of less than 5 m (16 ft) over it, extends ¾ mile off the W side of Dao Ba Mun. Île Huron (8.91) and **La Hure,** 38 m (126 ft) high, lie on this shoal 8 cables SSE and 3½ cables SE, respectively of La Tour. Another shoal with similar depths extends ½ mile off the W side of the NW end of Dao Ba Mun. **Le Bonnet du Nord** lies on the SW end of this shoal, and **Les Frères,** two islets close together, lie on the N end, 6 cables WSW of Pointe de Tsieng Mun. **Le Coin,** 66 m (218 ft) high, lies 3½ cables SSW of Les Frères.

Chenal de la Surprise enters Tsieng Mun (8.111) between Pointe de Tsieng Mun and Rocher Tsieng Mun.

8.100

Anchorage may be obtained in Chenal de la Surprise

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as convenient; the bottom consists of mud and the holding ground is good.

Tidal streams in the S end of Chenal de la Surprise follow the direction of the channel and turn at high and low water locally. The rate decreases when going N from Pak Ha Mun where the S-going stream attains 1¾ knots. In the N part of the channel, between Île Madeleine and Dao Ba Mun, the stream sets SW from 2 hours after high water locally and turns at half-tide to run NNE. The falling SW-going stream attains a rate of 1¼ knots and at low water locally is 1 knot. See also 8.111.

8.101

Directions for Chenal de la Surprise. After entering through Pak Ha Mun as described in 8.97, proceed N with La Gourde in line with the E side of a remarkable cliff on Île Madeleine, bearing 002° which leads E of the shallow bank extending S from La Tortue. When abreast Le Poisson-lune, keep the SE end of La Tour in line with the W extremity of Île Noire, bearing 013°.

8.102

If proceeding W into Chenal de la Carabine, leave Chenal de la Surprise when abreast La Gourde by keeping the W extremities of Petite Îlot Boise and Le Cône in line bearing 344° which passes between La Gourde and the 3·7 m (12 ft) shoal close NE of it, and thence steer with the summit of Le Château-Fort in line with the summit of Île Plate bearing 304°, to pass close NE of **La Quille,** a rock 22 m high situated 2½ cables NW of La Gourde. If coming from N, Chenal de la Carabine can safely be entered when the NW extremities of La Gourde and La Pierre Traillée are in line bearing 216°.

8.103

From a position 4 cables SE of La Gourde, the channel leads NNE with the E extremities of Île Noire and Le Potiron in line bearing 016°, which leads past La Tour, thence with the E extremity of that island in line with the E extremity of La Gourde, bearing 204° astern, to pass E of Île Noire.

From abreast Île Noire, the channel trends more E with the S extremity of Île Noire in line with the white patch on the S end of the islet close N of La Tour, bearing 217° astern, and showing between La Tour and L'As de Trefle. From 2 cables E of Île du Doigt, proceed with the S extremity of that island in line with the NW extremity of Les Jumeaux, bearing 236° astern, to enter Tsieng Mun (8.111) 1 mile farther NE.

TSIENG MUN AND APPROACHES

Chart 1965

Îles Kao Tao

8.104

Îles Kao Tao are situated in the approach to Tsieng Mun (8.111), from 7 to 14 miles offshore; Ma Chao, the NE island of the group, lies 12½ miles ENE of Pointe de Tsieng Mun (8.109). The islands are mostly barren although the larger ones are cultivated and wooded in some parts. These islands are fairly steep-to on the SE side, but they are fringed by reefs and the channels between them are shallow and encumbered with rocks and dangers. No vessel should navigate in their vicinity without local knowledge.

8.105

Dao Tching Lan Xan, the SE island of the group, has a range of hills running along its centre, attaining an elevation of 198 m (651 ft) at **Grand Sommet** near the centre of the island, and terminating at the S end of the island in red cliffs. Some islets and rocks lie off the N end of the island; the outermost of these, **Xan Chao** (21° 03′ N, 107° 52′ E), an islet 69 m (225 ft) high, lies ½ mile off the NE end.

Tan Mun Chao, an islet 40 m (130 ft) high, lies 4 cables NW of **Chao Chay Toc,** the S extremity of Dao Tching Lan Xan. A rock, with a depth of 1·2 m (4 ft) over it, lies 1 mile NNW of Tan Mun Chao; and another rock, with a depth of less than 2 m (6 ft) over it, lies 2 cables W of the N extremity of the islet.

8.106

Dao Cu Xa (Sha-Pak-Wan), an island with a conical summit 160 m (553 ft) high near its N end, lies 1 mile W of Chao Chay Toc. There is a flagstaff on the 69 m (225 ft) hill on the SE side of the island. **Ngao Pi Long,** an islet 47 m (156 ft) high, lies on a reef which extends ¾ mile from the E side of Dao Cu Xu. A shoal, with a depth of 4·3 m (14 ft) over it, lies 4½ cables ESE of Ngao Pi Long.

Anchorage may be obtained by vessels with local knowledge with a draught of about 4½ m (15 ft), between Dao Cu Xu and Dao Tching Lan Xan. The anchorage is open to S winds.

8.107

Rocher Ulipai, 1 m (3 ft) high, lies 2¾ miles NW of the N extremity of Dao Cu Xu. A rock, which dries 2·4 m (8 ft), lies 3 cables N, and another rock, which dries 1·8 m (6 ft), lies 2 cables S of Rocher Ulipai. **Rocher du Pou,** with a depth of 4·6 m (15 ft) over it, lies 1¼ miles NW of Rocher Ulipai.

Tidal streams 1 mile S of Rocher Ulipai attain a rate of 1 knot with the SSW-going stream between 3 and 4 hours after high water locally.

Cao Thao Chay (21° 02′ N, 107° 46′ E), an islet 102 m (336 ft) high, lies 1 mile NE of the N extremity of Dao Cu Xu. **Xay Ly Nhy (Xai-Ly-Nhy),** an islet, lies on a bank 6 cables NW of Cao Thao Chay. Patches of reef, which dry, extend 7 cables S and 2 cables N of Xay Ly Nhy. **Roche du Chinois,** with a depth of 2·7 m (9 ft) over it, lies 1¼ miles W of Xay Ly Nhy, with several drying patches between. **Plateau du Nord-ouest,** a rocky shoal with a least depth of 5·5 m (18 ft) over it, lies 2 miles WNW of Xay Ly Nhy.

Tai Ly Nhy, an islet 63 m (208 ft) high, lies 1 mile N of Cao Thao Chay, with foul ground, portions of which dry, between. **La Souris,** a detached rock which dries 2·4 m (8 ft), lies 1½ miles WNW of the S end of Tai Ly Nhy; a rock which dries 0·9 m (3 ft) lies near the NW edge of a bank, 1 mile NW of Tai Ly Nhy.

Tai Tsieng Tan, a high rock, lies 1½ miles N of Tai Ly Nhy.

Chart 3990

8.108

Vang Chao, an island 94 m (310 ft) high, lies 2½ miles NE of Tai Ly Nhy. **Ca Pui Chao,** an islet fringed by a narrow reef, lies ½ mile SE of Vang Chao; and a detached rocky shoal, with a least depth of 0·3 m (1 ft) over it, lies 1¼ miles farther SE. **Toc Xec Chao,** an islet 12 m (38 ft) high, fringed by a reef and by a bank, parts of which dry, extending 4½ cables WNW, lies 2 miles S of the SE extremity of Vang Chao.

Txat Xing Chao is the largest of a group of islets connected by reefs, lying 1¼ miles NW of Vang Chao.

8.109

Ma Chao (21° 09′ N, 107° 51′ E), 90 m (297 ft) high with a reef on which there are some islets extending ½ mile NE from it, lies 3 miles NE of Vang Chao. **Ma Chao Chay,** an islet 27 m (90 ft) high, lies on the bank extending ¾ mile SW from Ma Chao. **Phan Xi Chao,**

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74 m (244 ft) high, lies 3½ cables S of Ma Chao Chay. **Toi Mui Chao,** an islet 40 m (132 ft) high, lies ½ mile SE of Phan Xi Chao with an islet and foul ground between. **Chim Xan,** with a conical summit 142 m (467 ft) high, lies 5½ cables SE of Ma Chao.

Dangers between Îles Kao Tao and Tsieng Mun

8.110

Banc Intermédiaire, with a least depth of 3·0 m (10 ft) over it, lies midway between the N end of Dao Ba Mun (8.95) and Rocher Ulipai (8.106). **Rocher Nam,** with a depth of 3·7 m (12 ft) over it, lies at the NE end of this bank, 3¾ miles ESE of Pointe de Tsieng Mun (8.98). **Roche du Nhatrang,** a shallow head with a depth of 2·7 m (9 ft) over it, lies 2 miles SE of Pointe de Tsieng Mun, and **Roche du Hugon,** another shallow head with a depth of 1·8 m (6 ft) over it, lies on the E side of the entrance to Tsieng Mun 2 miles ENE of the same point. Rocher Tsieng Mun (8.98), bearing more than 276° and open S of Île Boisée, leads S of Roche du Hugon. **Banc Latéral,** which has a least depth of 8·8 m (29 ft) over it, lies on the W side of the entrance to Tsieng Mun with its N end ½ mile SSE of Pointe de Tsieng Mun. The bank extends S for about 1 mile.

Tsieng Mun

8.111

Tsieng Mun is entered between Pointe de Tsieng Mun (21° 07′ N, 107° 38′ E) (8.98) and **Île Boisée,** 8 cables NE, and leads to the N end of Chenal de la Surprise and to the NE end of Chenal du Duchaffaut (8.79) via Passe des Bruyères.

Anchorage may be obtained a short distance within Tsieng Mun, where there is excellent shelter in a depth of 15 to 18 m (49 to 59 ft) with good holding ground. Shallow draught vessels may obtain better shelter in the N end of Chenal de la Surprise close SE of Île du Doigt (8.98).

Tidal streams. In the anchorage off Île du Doigt, with large tides, slack water occurs between 2½ and 1½ hours before a high water locally, after which it sets SSW attaining a rate of ½ knot, ½ hour after high water. Slack water occurs again 4½ hours after high water when the stream then turns NNE, attaining a rate of ¾ knot, 7 hours after high water locally. On the falling tide preceding higher low water, the stream sets S, but on the falling tide preceding lower low water, the stream sets NNE.

Directions for Tsieng Mun. Approach the entrance from S by passing between Banc Latéral and Roche Nhatrang. When abreast the entrance, enter with the summit of Île aux Bruyères bearing 291°. If proceeding into Chenal de la Surprise, Pointe de Tsieng Mun may safely be rounded at a distance of 3½ cables and thence pass midway between that point and Rocher Tsieng Mun, 9 cables NW.

Passe des Bruyères

8.112

Passe des Bruyères is a narrow channel with a least depth of 4·6 m (15 ft) in the fairway. It leads WNW from Tsieng Mun, passes close N of Rocher Tsieng Mun and 1¼ cables NE of the reef extending from the N end of Île aux Bruyères (8.79) to join Chenal du Duchaffaut 1 mile farther N.

Anchorage is not recommended in the NW part of Passe des Bruyères as the swell from seaward is often felt there. If necessary vessels should use the anchorage between Île aux Bambous and Dao Cai Bau (8.79).

Directions for Passe des *Bruyères*. After entering Tsieng Mun as directed in 8.111, steer to pass close N of Rocher Tsieng Mun, and thence bring the N extremity of that rock in line, astern, with a white pyramidal structure on the NE end of Dao Ba Mun bearing 132°. When about ½ mile SE of Île aux Bruyères, bring a white mark on the N extremity of the NE islet of Île du Doigt group (8.98) in line, astern, with another white pyramidal structure standing on the S islet of Les Frères, bearing 148°, which leads past the reef extending from the N end of Île aux Bruyères and thence into Chenal du Duchaffaut (8.81).

8.113

Petite Passe Tsieng Mun is entered from S between Île Boisée and the S end of **Île aux Sangliers,** 198 m (651 ft) high, which extends 5 miles NE. It leads NNE close off the W side of the latter island but is unimportant.

Islands and dangers North-east of Île Kao Tao

8.114

Tai Shan Tao (21° 11′·5 N, 108° 00′ E), 187 m (charted as 441 ft) high, is the SE island of a group lying 8½ miles ENE of Ma Chao (8.109). **Rocher Occidental,** 4½ m (15 ft) high, lies ½ mile WNW from the W extremity of the island, and **Im Shan,** 59 m (195 ft) high with an islet 41 m (136 ft) high close W of it, lies 4 cables N of Tai Shan Tao.

Lo Chuc San, the principal island of the group, lies 3 miles NW of Tai Shan Tao; it has several peaks, the highest of which, **Grand Sommet,** rises to an elevation of 165 m (charted as 611 ft). It is inhabited by Chinese and fishermen from Beihai (8.134) shelter there at night. Foul ground and banks with depths of less than 10 m (33 ft) over them extend up to 1½ miles E and SE and 1 mile NW from the island. **Banc du Pluvier,** which dries 0·9 m (3 ft), lies on one of these banks 8 cables NE of the SE extremity of the island. **La Pyramide,** a rock 17 m (57 ft) high, lies close off the N extremity of the island.

Anchorage, affording good shelter during the NE Monsoon, may be obtained ½ mile SE of the W extremity of Lo Chuc San and 2 cables offshore, in a depth of 10 m (33 ft), mud and sand.

8.115

Sam Ha Pai is a reef with two heads, which dry 0·3 m (1 ft) and 0·9 m (3 ft), lying 5½ miles ENE of Lo Chuc San. Rocher Occidental, bearing 208° and open NW of the 41 m (136 ft) high islet close W of Im Shan, leads NW of Sam Ha Pai.

Approaches to Port Wallut and Tien Yen

8.116

Port Wallut (21° 12′ N, 107° 34′ E) can be approached via Tsieng Mun (8.111), Passe des Bruyères and the NE end of Chenal du Duchaffaut, all of which have already been described.

Kuai Chin Mun is a channel leading to Port Wallut. It is entered between the N end of **Île aux Singes** (21° 14′ N, 107° 41′ E), situated 3 cables NE of Île aux Sangliers, and Île aux Cigales 1¾ miles NW and leads from seaward to Cua Mo (8.118), 4½ miles WSW. Although there are depths of over 5·5 m (18 ft) in the fairway of the channel, except for a 5·2 m (17 ft) patch 1¾ miles W of the N entrance point, its seaward approaches are encumbered with numerous shoals and banks, the more important of which are:

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Name	*Least depth*	*Position from N end of Île aux Singes*
Le Grand Banc	3·4 m (12 ft)	2 miles SSE
Le Petit Banc	2·1 m (7 ft)	4 miles SE
Le Banc du Milieu	1·2 m (4 ft)	5 miles E
Le Banc du Clocheterie	3·0 m (10 ft)	6½ miles ENE

Kuai Chin Mun should only be used by vessels of shallow draught and with local knowledge.

8.117

The S side of Kuai Chin Mun is formed by the N edge of the shallow bank between Île aux Singes and the E side of Chenal du Duchaffaut. **Rocher de Marbre,** an islet, lies ¾ mile W of the N end of Île aux Sangliers and at the W end of **Petite Passe Kuai Chin,** a channel ¼ mile wide separating Île aux Sangliers from Île aux Singes.

Île aux Cigales, the N entrance point of Kuai Chin Mun, is situated 2 miles NW of the N end of Île aux Singes at the SW end of a group of islets extending 2¼ miles NE. **Le Conique,** an islet, with **Îlot Pipe** close NE of it, lies at the N end of the group. **Île de la Plage,** 83 m (274 ft) high, lies on the N side of the channel 2 miles SW of Île aux Cigales.

8.118

Cua Mo is entered between the NE extremity of Dao Cai Bau and **Île Verte** (21° 15′ N, 107° 37′ E). **Île des Amis** lies on the N side of the fairway ¾ mile W of Île Verte. Sandbanks which dry and on which fishing stakes are frequently erected, lie N and W of Île des Amis.

Îles des Pirates lies on the S side of the fairway, ½ mile S of Île des Amis, and are separated from Dao Cai Bau by a narrow channel, less than 2 cables wide, which can be used by small vessels with local knowledge.

Tidal streams in this channel are strong and attain a rate of 2 to 2½ knots.

A custom station and a flagstaff are situated on the SW end of Îles des Pirates.

8.119

Port Wallut (21° 12′ N, 107° 34′ E) is a port for loading coal, situated in a small bay 3 cables SE of the SW extremity of Îles des Pirates. There is a stone wharf 60 m long, with a depth of 4·9 m alongside, in the port. Vessels proceeding to the port should pass N and W of Îles de Pirates. During the ebb streams an eddy is experienced at the wharf.

Pilotage is not compulsory. Vessels requiring pilots should embark them at Zero Buoy at the entrance to Cua Nam Trieu (7.76).

Anchorage may be obtained ½ to 1 mile W of the SW extremity of Île des Pirates in depths of 7 to 12 m (23 to 39 ft), good holding ground. Anchorage in the channel between Îles des Pirates and Dao Cai Bau is restricted to vessels of under 45 m in length, but it is not recommended on account of the strong tides and the violence of the squalls from the mountains.

Facilities. There is a crane of 5 tons capacity on the wharf.

Minor repairs can be undertaken.

Supplies. Fresh provisions can be obtained in small quantities.

Communications. There is irregular communication by sea with Cam Pha, Hon Gay, Haiphong, and Mong Cai (8.127).

8.120

Rade de Tien Yen lies along the NE side of Dao Cai Bau between Îles des Pirates and **Pointe du Coque,** the N extremity of the island, 7 miles NW; it is about ½ mile wide between the island and the drying sandbanks to the NE. The N part of Rade de Tien Yen is encumbered with rocks and shoals and vessels should not proceed above Port Wallut without local knowledge.

The town of **Tien Yen** is situated 4½ miles NW of Pointe du Coque.

Coast between Dao Cai Bau and the China border

8.121

Between the NE end of Dao Cai Bau and the international boundary between Vietnam and Republic of China, about 30 miles NE, the coast is fronted by a chain of islands. Within these islands, a range of mountains lies between 8 and 18 miles inland, rising to an elevation of 1504 m (4936 ft) in **Khoang Nam Chau Lanh,** about 21 miles N of the NE extremity of Dao Cai Bau, but these are only visible from seaward in clear weather. Hills, covered with trees and dense jungle, extend to the coast which is bordered by mangroves. Extensive flats extend from the mainland coast, leaving a narrow channel, with a depth of not less than 3·7 m (12 ft), running along the NW side of the islands about 1 cable offshore. This channel can be entered from seaward through three deep-water passes between the islands and also at its E end; it affords well sheltered anchorage to vessels with local knowledge.

Tidal streams are stronger off this part of the coast than in Archipel des Fai Tsi Long, especially in the channels. Slack water coincides with high and low water locally except off Dao Cai Bau, where the tidal stream begins to run NE about 4 hours before low water and SE from 3 to 4 hours after low water locally.

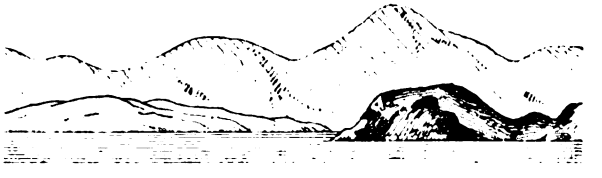
Île des Deux Chaines, the SW island of the chain, lies close N of Île des Amis, Île Verte and Île de la Plate.

8.122

Ko Kai Mun (21° 16′ N, 107° 38′ E), a pass with depths from 13 to 20 m (42 to 65 ft), separates Île des Deux Chaines from **Île du Grand Singe,** 180 m (592 ft) high, 6 cables NE. A ridge of rocks, one ½ m (1 ft) high and surrounded by foul ground, lies 3 cables S of the SW extremity of Île du Grand Singe. An islet, 97 m (317 ft) high with a bare summit, lies on the N side of the fairway ¼ mile within the entrance. Two rocks, 1 cable apart, the N rock with a depth of 0·9 m (3 ft) over it, and the S rock with a depth of 1·2 m (4 ft) over it, lie near the middle of the fairway within the entrance, 3 cables WSW of the 97 m (317 ft) islet.

Île du Tir lies 1½ miles WNW of the 97 m (317 ft) islet near the outer edge of the drying bank extending from the mainland. **Dam Ha,** an important village, is situated on the W bank of a river 3½ miles N of Île du Tir. Boats can ascend this river to within a short distance of the village.

Directions for Ko Kai Mun. After passing through Kuai Chin Mun (8.116), approach to Ko Kai Mun with the SW extremity of the 97 m (317 ft) islet in line with the SW slope of a distant hill bearing 320°.



Islet 97 m high

Ko Kai Mun
(Original dated 1886)

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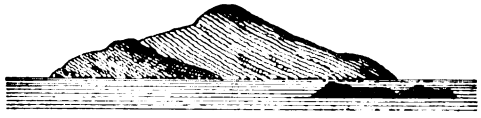
When past the ridge of rocks outside the entrance, keep this ridge in line, astern, with the S extremity of Île aux Cigales bearing 101° until the two rocks lying a short distance within the entrance have been cleared.



The S extremity of Île aux Cigales in line with ridge of rocks bearing 101°
(Original dated 1933)

8.123

Kai Tio Mun, 4 miles NE of Ko Kai Mun, is the narrow pass separating the NE end of Île du Grand Singe from the SW end of **Île du Château Renaud** (21° 18′ N, 107° 42′ E). There are depths of 14·9 m (49 ft) in the fairway but less than 5 m (16 ft) in the approach from seaward, and within the pass depths decrease rapidly to less than 10 m (33 ft).

Tsun San, an island 127 m (418 ft) high, lies on the NE side of the approach to Kai Tio Mun, 2¾ miles ESE of the entrance. **Roche de l'Huitre,** which dries, lies in the approach, 1 mile SE of the entrance. Île Conique (8.117), with Île Pipe close NE of it, lies on the W side of the approach. Inside the pass, a shoal with a depth of 1·2 m (4 ft) over it, lies ½ mile WNW of the NE end of Île du Grand Singe.

8.124

Fu Tai Mun, 7½ miles ENE of Kai Tio Mun, is the pass separating the NE end of Île du Château Renaud (21° 21′ N, 107° 49′ E) from the W end of Île du Kersaint. The pass is 7 cables wide, with depths of 15·0 m (49 ft) in the fairway, but in the seaward approach over the coastal bank there are depths of only 6·4 m (21 ft).

On the W side of the approach a wooded islet, with drying reefs extending ½ mile E and NE from it, lies 2¼ miles SSW of the E end of Île du Château Renaud and 1 mile offshore. A shoal, with a least depth of 3·0 m (10 ft) over it, extends from 3 to 11 cables S from the same point.

The E side of the pass is formed by the W end of **Île du Kersaint** and consists of two peninsulas 1 mile apart; **Sommet A,** 158 m (517 ft) high, lies near the extremity of the S peninsula. A rock, with a depth of 4·9 m (16 ft) over it, lies in the middle of the pass, ½ mile W of the N peninsula.

Tidal streams in Fu Tai Mun are strong. The ebb stream maintains a rate of 3 knots for about 3 hours. High water slack occurs at the same time as high water at Beihai (8.134) and low water slack 1 hour before low water at that place.

Directions for Fu Tai Mun. When entering from seaward, approach with the W extremity of Île du Kersaint bearing 349°, and when 4 cables off that point, steer to pass two cables off it to pass between it and the 4·9 m (16 ft) rock ½ mile W. When clear of this rock, steer for **Les Myrmidons,** a prominent hill 79 m (261 ft) high rising above the mangroves on the mainland coast, 5¼ miles NW of the W end of Île du Kersaint, and anchor as convenient.

8.125

Within Fu Tai Mun there are several prominent wooded islets. **Chapeau Chinois,** 186 m (609 ft) high, lies 3¾ miles W of the W extremity of Île du Kersaint on a very extensive mud-flat with depths from 2 to 5 m (7 to 16 ft) over it. **Îlot des Mages,** a group of islets, lies 8 cables NNE of Chapeau Chinois. Drying banks and shoals, on which are fishing stakes, extend a considerable distance offshore in this vicinity.

Île Verte lies 2¾ miles N of the W extremity of Île du Kersaint on the W edge of a drying bank. A channel leads from Fu Tai Mun past the W side of Île Verte to **Cok Ouo Cong.** Small vessels with local knowledge can obtain **anchorage** off Île Verte in 7 m (23 ft). A short distance W of this channel is another narrow channel leading towards Ha Coi. This channel can only be used by boats with local knowledge.

Ha Coi (21° 27′ N, 107° 45′ E) is a town situated on the mainland 4 miles N of Îlot des Mages and is the most populous town in the N part of Gulf of Tonkin. The inhabitants are mostly Chinese.

Communications. Ha Coi is connected by road with Tien Yen, 21 miles W, and Mong Cai, 13 miles ENE.

8.126

Kua Tam is the E entrance of the inner channel described in 8.121. It is about 2 cables wide between the banks on either side with a depth of 5·8 m (19 ft) in the fairway. **Rocher de l'Aréquier** (21° 24′ N, 108° 00′ E), a red and black rock 18 m high, is the W entrance point of Kua Tam and is situated on the edge of a reef extending 2½ cables from the E end of Île du Kersaint.

Anchorage. The swell penetrates for a considerable distance into Kua Tam during the flood stream in the NE Monsoon, rendering it advisable to anchor off the S end of the channel leading to Rivière de Mong Cai, 2 miles within the entrance and about 1½ cables off the N side of Île du Kersaint, in depths of 9 to 11 m (30 to 36 ft), with good holding ground. This is the nearest anchorage to Mong Cai.

Tidal streams are strong in Kua Tam, and form dangerous eddies. At about the time of high water the ebb stream in the entrance is already established while the flood stream is still setting in a NW direction through the channel to Rivière de Mong Cai. At the anchorage, slack water occurs at the same time as high and low water at Beihai (8.134) and the streams attain a rate of 2 knots.

Directions for Kua Tam. When entering from seaward, pass E of Rocher de l'Aréquier at a distance of 2 cables and thence keep at a distance of 1½ cables off the N side of Île du Kersaint towards the anchorage.

8.127

Within Kua Tam, **Ngok San,** 51 m (166 ft) high, and also **Ngok San** village are situated at the SW extremity of **Île de Tra Co,** 3 miles NW of the E extremity of Île du Kersaint. There is a custom house at Ngok San village. The S end of a channel leading across the drying sandbank to Ngok San and **Rivière de Mong Cai (Mon Cay)** is situated 1½ miles W of the entrance and is marked by a buoy (black conical; black cylinder topmark); the N end of this channel is marked by buoys and beacons, the buoys being moved as necessary.

Mong Cai (Mon Cay), an important town near the Vietnam frontier, lies on the E side of the river 5½ miles N of Ngok San. Small vessels with local knowledge can reach Ngok San but above that, the river can only be ascended by boats at high water. In the high-river season the tidal flow is outward only, attaining a rate of 2 to 3 knots. In other seasons a feeble in-going flow is felt while the tide is rising.

Communications. Ngok San is the E port visited by local vessels using the inner channels from Haiphong, calling at Quang Yen, Port Courbet, Port Wallut, with which places there is regular communication.

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8.128

The seaward end of the international boundary between Vietnam and Republic of China lies between the sandbanks a short distance E of the E extremity of Île de Tra Co (21° 30′ N, 108° 04′ E). This area has not been thoroughly surveyed.

GULF OF TONKIN—EAST PART

GULF OF TONKIN—COAST OF CHINA

Chart 3990

8.129

With the exception of the ports of Fangcheng (8.132a) and Beihai (8.134) and their approaches, the N side of the Gulf between the international boundary between Vietnam and Republic of China (21° 24′ N, 108° 05′ E), and Guantou Jiao, 53 miles E, has not been thoroughly surveyed. Vessels should pass W of Weizhou Dao (Wei-Chou Tao) (21° 03′ N, 109° 07′ E), an island situated 23 miles S of Guantou Jiao, when making for Beihai as the adjacent waters to E have not been surveyed.

Numerous fishing stakes may be encountered up to 30 miles or more at times off the mainland coast. See also 7.1.

Tidal streams in the N part of Gulf of Tonkin set in an E to NE direction for 8 hours and a W to SW direction for 16 hours during any day throughout the year. On days of new and full moon the streams set:

Season	*Local time*	*Direction*
Summer	1500	E-going stream begins.
Summer	2300	W-going stream begins.
Winter	0300	E-going stream begins.
Winter	1100	W-going stream begins.

The streams attain a rate of ½ to 1½ knots which is accelerated or retarded by the prevailing monsoon, and occur about 1 hour later for each day after new and full moon.

International boundary to Beihai

8.130

Pak Son Kong Pai (21° 23′ N, 108° 12′ E), a dangerous rock ½ m (1 ft) high with a drying reef close W of it, lies 10 miles SE of the E end of Île de Tra Co. A rocky shoal, with a depth of 1·8 m (6 ft) over it, lies 1 mile ENE of Pak Son Kong Pai.

A 7 m (23 ft) shoal lies 6 miles S of Pak Son Kong Pai.

The entrance to the port of **Chuc San** lies on the international border, 7 miles NW of Pak Son Kong Pai, but is only accessible to small vessels with local knowledge.

Anchorage may be obtained by vessels with local knowledge off the entrance to the port with Bailong Wei, see below, bearing 050°, in depths of 9 to 10 m (30 to 33 ft).

8.131

Bailong Wei (Cap Pak Loung) (21° 30′ N, 108° 13′ E), 88 m (289 ft) high and prominent, lies 8¼ miles E of Île de Tra Co and is the SW end of Bailong Bandao, a hilly peninsula projecting from the mainland.

Bailong Wan is entered close W of Bailong Wei. Outside the entrance there is a bar, over which there are depths of 7·0 m (23 ft), but from a position ¾ mile W of Bailong Wei there are depths from 7·0 to 11·0 m (23 to 36 ft) in the fairway, in which **anchorage** with good holding ground may be obtained. Farther N there is a large area where shallow draught vessels can anchor. Vessels should not enter without local knowledge.

8.132

An Bu Jiang (An-fou-k'ou Chiang), a shallow irregular-shaped bay with mud-flats, is situated between Bailong Wei and **Paotai Jiao,** 11 miles ENE.

A light is exhibited from a metal tower, red and white bands, on Paotai Jiao.

Da Sha a drying bank extends 3½ miles ESE from Bailong Bandao. A **light** is exhibited from **Sanya Shi** (21° 31′ N, 108° 20′ E) near the extremity of a bank with depths of 2 m over it extending S from the drying bank.

A bank, with depths of less than 2 m over it, extends 3 miles SW from Paotai Jiao. A **light** is exhibited from **Diaoyutai,** a rock situated nearly 1½ miles SW of the point.

Fangcheng Gang

8.132a

Fangcheng Gang (21° 37′ N, 108° 20′ E), a deep water port open to foreign shipping, is situated at the head of an inlet in the W part of An Bu Jiang. It is approached by a channel 7½ miles long marked by leading lights and light-buoys. The channel is dredged to 7·5 m (24 ft) and the maximum permitted draught is 9·3 m (30 ft).

Anchorages. The pilot anchorage is a circular area with a radius of ½ mile centred on Q Light-buoy (special) (21° 27′·9 N, 108° 21′·3 E).

Anchor berths for large vessels waiting to enter harbour are situated NW and NE of the pilot anchorage.

Anchor berths for vessels carrying dangerous cargoes are situated 3¼ miles ENE of Q Light-buoy.

Additional anchor berths for large vessels waiting to enter harbour are situated 2 miles W of Paotai Jiao on a continuation of the initial leg of the approach channel.

Pilotage. The boarding place is in the pilot anchorage.

Approach. The approach to the pilot anchorage from seaward is free from dangers. The coast which is hilly is a good radar target.

The dredged channel entered 1¾ miles N of Q Light-buoy is marked by light-buoys and has a minimum width of 80 m. The channel is dredged to 7·5 m (24 ft).

Sanya Hangdao the initial reach of the channel leads N for 3 miles, thence **leading lights,** in line bearing 303¼°, lead along Xixian Hangdao. A second pair of leading lights in line bearing 326¾° lead for a short distance through the turn into Niutou Hangdao. Leading lights, in line bearing 350° ahead, and another pair, bearing 170° astern, lead for 2 miles along this reach. Leading lights, in line bearing 339¼°, lead for ¾ mile along the final reach into the harbour area.

Berths. There are seven berths for bulk and general cargoes. No 2 is a coal berth. No 8, a container berth, was under construction in 1987.

Facilities. Tugs are available to assist in berthing.

There are 10-ton cranes at all berths.

Fresh water is laid on.

Fuel can be obtained by barge from the nearest bunkering port.

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8.133

Hu-tieh Ling, an islet 25 m (82 ft) high, lies close offshore 3 miles E of Paotai Jiao.

Chin-chou Wan, which is encumbered with numerous shallow banks with channels between them, is entered between Hu-tieh Ling and **Ta-mao Chou** (21° 35′ N, 108° 45′ E), a 20 m (65 ft) islet 17 miles ENE. A narrow channel obstructed by a bar and with many islets on both sides of it, leads N from a position about 6½ miles E of Hu-tieh Ling to **Mao-wei Hai,** a large lagoon. The town of **Ch'in Hsien** (21° 57′ N, 108° 37′ E) lies on the W bank of **Ch'in Chiang,** which discharges into the NE corner of Mao-wei Hai.

No vessel should attempt to enter Ch'in-chou Wan without local knowledge.

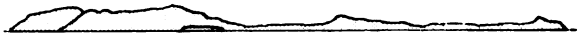
Between Ta-mao Chou and Guantou Jiao, 18 miles ESE, there is a large shallow bay with depths of less than 2 m (6 ft) in it. Several rivers discharge into this bay, the most important being **Ta-feng Chiang** in the NW corner of the bay and **Lien Chiang** in the NE corner. A shoal, with a depth of 1·8 m (6 ft) over it, is reported to lie 7¼ miles S of Ta-Mao Chou.

Chart 41

Beihai Gang

8.134

Guantou Jiao (21° 27′ N, 109° 03′ E) on the E side of the entrance to Beihai Gang is prominent and is the W extremity of a low peninsula. A ridge of hills, attaining an elevation of 114 m (374 ft), rises close behind the point and appears as an island from a distance.



Guantou Jiao

Approach to Beihai Gang from S
(Original dated 1933)

A light is exhibited from a conspicuous white tower situated on **Guantou Ling,** the 114 m summit of Guantou Jiao.

There is an L-shaped oil pier close NE of Guantou Jiao.

Nautilus Hill, 111 m (363 ft) high, lies ¼ mile N of the light-tower. For about 1¼ miles NE of Guantou Jiao the coast consists of cliffs 20 m high; farther NE there are sand-hills, thence as far as **Di Jiao,** a point 2¾ miles NE of Guantou Jiao, the cliffs are 6 m to 10 m high.

A fort stands on **Shipu Shan,** a hill 9 cables NE of the lighthouse, and a signal mast stands on **Chingeng Ling,** another hill 1 mile farther NE. There is a concrete jetty at Di Jiao.

The town of **Beihai** is 2 miles E of Di Jiao.

Pilotage is compulsory: the pilot embarks in the **quarantine anchorage** on the S limit of the port, 4 miles S of Guantou Ling Lighthouse. The anchorage has depths from 8 m to 10 m, sand and mud, and is marked by No 1 Light-buoy (special). The ETA and request for a pilot should be signalled 48 hours in advance.

The harbour is open to foreign shipping.

Entrance channel. No 2 Light-buoy (starboard hand) is moored 1¼ miles SSW of Guantou Jiao.

No 3 Light-buoy (safe water), moored 1½ miles NW of the same point, marks the entrance to Beihai Gang; thereafter the channel is marked by light-buoys (port and starboard hand).

8.135

Anchorages. Nos 1, 2 and 3 anchorages lie in the channel N of Di Jiao where the width is from 400 m to 500 m and the depths from 3·6 m to 9·4 m, mud and sand: they are used by vessels up to 10 000 tons. During the NE Monsoon working of cargo is often difficult.

There is 500 m of wharfage, suitable for vessels of 2000 tons in a basin close E of Di Jiao: the approach to this basin is marked by a pair of **leading lights,** exhibited from white posts, in line bearing 151½°.

There are two berths for vessels of 10 000 dwt.

Tidal streams set through the anchorage N of Guantou Jiao at a rate of 2 to 2½ knots with large tides and ½ knot with small tides. The NE-going stream begins 1 hour after low water and the SW-going stream 1 hour after high water locally. The SW-going stream is the stronger.

Directions. From a position about 5 miles W of Weizhou Dao (Wei-chou Tao) (8.141), steer for the quarantine anchorage (8.134), thence being guided by the entrance channel buoys.

8.136

Facilities. Tugs and cranes are available.

There is a hospital.

Deratting can be carried out: see 1.92.

Supplies. Fresh water, fuel and provisions are available.

Communications. There is frequent communication by sea with Hong Kong and other ports in the Far East. There is a good road to Ho P'u, 13 miles NNE.

An airfield was under construction in 1985.

There is a port radio station.

Storm signals are displayed at the flagstaff on Chingeng Ling.

Chart 3892

Beihai to Jiaowei Jiao

8.137

Between Beihai and Shuiwei Jiao, 77 miles SE, the coast has not been thoroughly surveyed and should be avoided. Only small vessels with local knowledge should enter this area.

An extensive bay, encumbered with numerous shoals and banks, recedes 30 miles NE between a point 7 miles SE of Guantou Jiao and another point 33 miles farther SE. The shores of this bay are mostly low and rise to an elevation of between 30 and 60 m. To the N of the bay mountains rise in the interior.

Between this bay and **Shuiwei Jiao** (20° 24′ N, 109° 51′ E), a low point with reefs extending 1¼ miles W from it, several bays indent the W side of Leizhou Bandao (10.1).

Liusha Jiang discharges through a wide lagoon, across which a ferry runs, close N of Shuiwei Jiao. The river is unsurveyed, but it is reported to be navigable by vessels drawing up to 6·7 m for a distance of 2 to 3 miles affording good shelter during typhoons. Small vessels are reported to be able to proceed several miles farther up river.

The coast in this vicinity is low and wooded rising gradually to **Jiashan Ling,** 181 m high, 11 miles NNE of Shuiwei Jiao and 4 miles inland. When approaching from W, this summit is the first land sighted. Shi Ling (9.38) will be seen some time before Jiaowei Jiao, see below.

8.138, 8.139

Spare.

8.140

Dongchang Wan lies on the SW side of Leizhou

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Bandao (10.1) between Shuiwei Jiao and Jiaowei Jiao (20° 14′ N, 109° 55′ E), 11½ miles SSE. The shores of the bay are level and cultivated, with sandy beaches and groups of trees in places. A rock, with a depth of 1·8 m over it, lies in the middle of the bay 7 miles S of Shuiwei Jiao and 1 mile offshore.

Jiaowei Jiao is the SW extremity of a sandy islet, 12 m (40 ft) high, situated ½ mile within the edge of the reef extending 2 miles S from the mainland, and is the NW entrance point of Qiongzhou Haixia (Hai-nan Strait) (9.17).

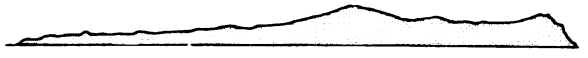
Jiaowei Jiao Light-structure is a white metal framework tower, situated on the S extremity of Jiaowei Jiao. In 1965 the light-structure was reported to be hard to distinguish from the trees near it. See illustration in 9.37.

Anchorage. Good anchorage may be obtained with shelter from NE winds in the S part of Dongchang Wan, with Jiaowei Jiao Light-structure bearing 128° distant 1½ miles, in a depth of 16 m (52 ft), mud.

Off-lying islands and dangers

8.141

Weizhou Dao (21° 03′ N, 109° 07′ E), situated 23 miles S of Guantou Jiao (8.134), is composed of hills rising abruptly from the sea on its S and W sides, and sloping towards the coast on its NE side. **Wan-t'ou Ling,** the summit, is 69 m high near the SE extremity of the island.



Weizhou Dao from W
(Original dated 1933)

A light is exhibited from a white round tower near the S extremity of the island.

Reefs extend 1 mile from the N side of the island and ¼ mile from the SW and E sides. At night Weizhou Dao should not be approached within depths of 18 m (60 ft).

A below-water rock lies 16½ miles WNW of the W extremity of Weizhou Dao (chart 3990).

8.142

Nan Wan is a small bay on the S side of Weizhou Dao, entered close E of the S extremity of the island.

There is a conspicuous white house at the head of the bay, and the village of **Wei-chu-hsu** stands on the NE shore.

Anchorage, with good holding ground, may be obtained in the outer part of the bay in depths of 7 to 9 m (23 to 30 ft); it is sheltered from all winds except those between SSE and ESE, but apart from a chance of a typhoon, winds from S are seldom very strong.

8.143

Between Weizhou Dao and Guantou Jiao fishing stakes may be encountered and small patches of discoloured water, having the appearance of shallow water, are very common; they are only detached muddy whirls or patches of weed.

8.144

Xieyang Dao (20° 54′ N, 109° 13′ E), 139 m high, lies 8 miles SE of Weizhou Dao. On the W side of the island there is a steep cliff; and a village is situated in the valley in the middle of the island.

A light is exhibited from a white wooden tripod on the SW side of the island.

SE of Xieyang Dao long streaks of weed and patches of discoloured water may be seen, but the soundings only indicate a gradual change of depth. Vessels are recommended to avoid the neighbourhood.

Chart 3990

8.145

An off-lying platform is situated 33 miles W of Xieyang Dao and there are wells 15 miles SW of the same island.

Anchoring and fishing are prohibited in a corridor 1½ miles wide extending SSE from Weizhou Dao to Hainan Dao.

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CHAPTER 9

HAINAN DAO AND QIONGZHOU HAIXIA

HAINAN DAO

Chart 3991

General description

9.1

Hainan Dao (Hai-nan Tao) forms the SE part of Gulf of Tonkin. The N part of this large island is separated from Leizhou Bandao (10.1) by Qiongzhou Haixia (Hai-nan Strait) (9.17) which is about 10 miles wide.

Hainan Dao is 158 miles long from NE to S and forms part of the Chinese province of Kwangtung. Its S part is mountainous and covered with vegetation, and attains an elevation of 1878 m (6161 ft) in **Wu-chih Shan** (18° 54′ N, 109° 42′ E), which at times is visible from Qiongzhou Haixia. The N part of the island is low with a few scattered steep hills, and much of it is under cultivation of rice, areca, sugar cane, betel nuts and tobacco.

The SE and S coasts of the island are generally safe to approach, but banks have been reported and others may exist. Off the W coast there are several shallow banks, the farthest known of which is 19 miles offshore.

The S coast is indented with several bays affording anchorage and good shelter during the NE Monsoon, but they are partly open to S winds. The NW coast also affords good anchorage.

Tidal streams. Off the SW and SE coasts the monsoon currents are considerable, the average rate being from ¾ to 1 knot in a SW direction from October to March and from ½ to ¾ knot in a NE direction from June to August.

Caution. Navigational lights in the vicinity of Hainan Dao are liable to alteration without notice: the mariner is therefore warned to be particularly careful when navigating in this area at night.

Regulations. Certain regulations are issued from time to time, by the Chinese authorities, concerning entry into ports in Hainan Dao, and governing the passage of Qiongzhou Haixia. See 1.22 and 9.52.

WEST SIDE OF HAINAN DAO

Charts 3989, 3991

Ying-Ko Tsui to Basuo Gang

9.2

Ying-Ko Tsui (18° 30′ N, 108° 41′ E), the SW extremity of Hainan Dao is bare and sandy, and the land near it is flat. A white pagoda, surrounded by trees, stands close to the coast 2 miles E of the point. **Chin-chi Ling,** 118 m (387 ft) high, is situated 5 miles ENE and **Wo-lung Ling,** 251 m (824 ft) high, lies 7 miles NE of the point, respectively. **Ying-Ko Hai,** a large fishing village, stands on Ying-Ko Tsui. A reef fronts the village and numerous fishing stakes extend a considerable distance offshore. Landing at the village should be effected by local boats.

A **light** is exhibited from a metal framework structure, painted black and white in bands, on Ying-Ko Tsui: its charted position is approximate.

See 9.54 for landmarks.

9.3

Between Ying-Ko Tsui and **Kan-en Chiao** (18° 50′ N, 108° 37′ E), 20 miles N, there is a shallow bay. **Ma-an Ling,** 192 m (630 ft) high, with **Ling-t'ou** on its S side, stands close to the coast midway between the two points. A hill, 502 m (1647 ft) high, lies 3 miles E of Ling-t'ou. The coast between Ying-ko Tsui and Ma-an Ling is sandy and flat, but near the latter, coconut plantations are common, and near Kan-en Chiao sand again predominates. The village of **Kan-ch'eng (Kan-en)** stands 1½ miles NE of Kan-en Chiao.

A **light** is exhibited from a metal framework tower, painted red and white in bands, on Kan-en Chiao; its charted position is approximate.

Winds. Within 5 or 6 miles of the coast the NE Monsoon blows from N to N by E off Kan-en Chiao, with a tendency to blow off the land at night.

The coastal bank between Ying-Ko Tsui and Kan-en Chiao, over which there are depths of less than 10 m (33 ft), extends between 1 and 7 miles offshore. **Heng-mien Sha,** with a depth of 0·9 m (3 ft) over it, and **Lei-kung Sha,** with a depth of 1·2 m (4 ft) over it, lie respectively 4½ and 5 miles W of Ying-Ko Tsui. The sea breaks over Heng-mien Sha with a moderate swell.

Outer Bank, with a least depth of 4·0 m (13 ft) over it, lies 18½ miles WNW of Ying-Ko Tsui. **Comet Bank,** with a depth of 8·2 m (27 ft) over it, lies 2 miles N of Outer Bank.

9.4

Between Kan-en Chiao and Yulin Jiao, 16 miles N, the coast consists of a sandy plain, with occasional scrub and lagoons. The coastal bank, over which there are depths of less than 5 m (16 ft), extends from 1 to 3 miles offshore. A rock, 6 m (20 ft) high, stands 4 miles S of Yulin Jiao and 1 mile offshore.

9.5

Caution. When navigating along the W coast of Hainan Dao, vessels are recommended to pass outside the off-lying shoals, keeping at least 25 miles offshore in depths greater than 45 m (25 fm).

Charts 41, 3991

9.6

Beili Wan (Pei-li Chiang) is entered between **Yulin Jiao (Yu-lin-chou)** (19° 06′ N, 108° 37′ E) and **Ssu Keng-sha Chiao,** 6½ miles N, and except for a pyramidal hill, 49 m high, on Yulin Jiao, the coast of the bay is low, flat and sandy.

A **light** is exhibited from a metal column, painted black and white in bands, on Yulin Jiao. A signal station, at which storm signals and berthing signals for Basuo Gang are displayed, is situated near the light-structure.

Chart 41

Basuo Gang

9.7

Basuo Gang (T'ung-hai-t'an) (19° 06′ N, 108° 37′ E) is situated ¾ mile ENE of Yulin Jiao; its principal function is the export of iron ore. The harbour is protected by North Breakwater and West Breakwater

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constructed with large concrete blocks: North Breakwater is partly submerged at HW.

When approaching the port **Ta Ling** (chart 3991), SE of Ta Chiao T'ou (9.9), shows up well and has been seen by moonlight at a distance of 15 miles. The pyramidal hill on Yulin Jiao is very distinctive.

Pilotage is compulsory: the pilot boards in the **quarantine anchorage,** lying about 1½ miles NW of Yulin Jiao, in depths from 8 m to 11 m, mud and sand: the anchorage is very exposed and the holding ground in a strong wind is not good.

Directions. Vessels should make Yulin Jiao, and from a position with the lighthouse bearing between 100° and 110°, distant 10 miles, should steer for the quarantine anchorage. The channel entrance is marked on its S side by a light-buoy (starboard hand) moored 6 cables NW of Yulin Jiao.

Leading lights, exhibited from brick towers painted black and white in bands situated on the shore ½ mile E of the harbour entrance, in line bearing 089° lead along the channel.

Lights are exhibited from white concrete towers on the breakwater heads.

9.8

Berths. The main wharf on the NE side of the harbour is 371 m long and has depths of 8·6 m (28 ft) alongside. Two vessels of 18 000 dwt can be accommodated at Berths 1 and 2 to load iron ore. There are four bulk ore loaders.

The general cargo wharf, Berths 3 and 4, on the SE side of the harbour can accommodate one vessel of 10 000 dwt and one of 5000 dwt.

Facilities. Tugs are available.

There are several cranes at the general cargo wharf.

There is a small machine shop for repairs.

There are two general hospitals in the area.

Supplies. Fresh water is obtainable.

Provisions are available.

Communications. There are coast and port radio stations at Basuo Gang.

Regulations. The following information should be signalled to the Harbour Master 48 hours before arrival of the vessel:

(i) ETA.
(ii) Route.
(iii) Cargo to load.
(iv) Ship's length and breadth.
(v) Tons per inch immersion.

The information in (i), (ii) and (iii) should be signalled again 16 hours before arrival.

Weather permitting, all derricks should be topped up and hatch covers off before arrival. See also 1.17, 1.20, and 1.22.

Chart 3991

Basuo Gang to Ta Chiao T'ou

9.9

Pei-li village is situated 1¼ miles inland within **Pei-li Ho,** the entrance to which is almost obstructed by reefs and drying sandbanks, 5 miles NE of Yulin Jiao. Depths of less than 5 m (16 ft), and considerably less in places, extend seaward from the mouth of Pei-li Ho for a distance of 5 miles.

The SW extremity of **Pei-li Tsui,** a spit over which there is a least depth of 1·2 m (4 ft), lies 4 miles WSW of Ssu-keng-sha Chiao (19° 12′·5 N, 108° 37′·5 E), with **Pei-li Sha-tsui,** another spit, 1 mile farther N.

Ying-chiao Chiang, which is shallow, is entered between Ssu-keng-sha Chiang (9.6) and Ta-chiao T'ou, 10 miles NNE.

Ch'ang-chiang Ho discharges through a wide delta with several mouths at the head of the bay. The delta is fronted by several low sandy islets. The walled town of **Ch'ang-chiang** (19° 19′ N, 108° 41′ E) is situated 4 miles S of Ta-chiao T'ou.

Ta-chiao T'ou is a bold and rocky point, 37 m high. A **light** is exhibited from a white round brick tower on the N shoulder of the point.

Ta Ling, 423 m (1388 ft, charted as 1434 ft) high, with a conspicuous flat-topped summit, lies 2½ miles SE of Ta-chiao T'ou Light-structure, and **San-chia Ling,** 401 m (1316 ft) high, situated 10 miles E of the same light-structure, form the best marks for identifying this part of the coast.

NORTH-WEST SIDE OF HAINAN DAO

Charts 3990, 3991

Ta-chiao T'ou to Kuan-yin Chiao

9.10

Between Ta-chiao T'ou (19° 23′ N, 108° 41′ E) and Shen-chien Chiao, 37 miles NE, the coast is mostly low and reef-fringed. **Chi-tzu Wan,** a small bay with a sandy beach, lies E of Ta-chiao T'ou.

The estuary of **Hai-t'ou Chiang,** situated 16 miles NE of Ta-chiao T'ou, dries with the exception of small portions, and the entrance is obstructed by a bar, the depths over which are subject to change. It should only be entered by small craft with local knowledge.

Hai-t'ou shih (19° 30′ N, 108° 57′ E), a fishing village with a prominent fort, is situated near the N part of the estuary, and can be identified by its white houses and the junks in the anchorage.

Anchorage may be obtained off Hai-t'ou-shih with the fort bearing 114° distant 3 miles in a depth of 13 m (43 ft).

9.11

Kuan-yin Chiao is a point, 61 m high, situated 6 miles NE of Hai-t'ou Chiang. A flat-topped hill, 102 m (342 ft) high, stands 1½ miles E of the point.

A **light** is exhibited from a square stone tower on Kuan-yin Chiao; its charted position is approximate.

Yang-p'u Wan

9.12

Yang-p'u Wan is entered between Kuan-yin Chiao and Shen-chien Chiao, 16 miles NE. The bay is open to all W winds but affords anchorage during the NE Monsoon from September to March.

Chart 3893

Lin-ch'ang Shih, with a sand cay which dries 2·1 m (7 ft) near its SW end, lies in the middle of Yang-p'u Wan, 3½ miles WSW of Yang-p'u Tsui (19° 43′ N, 109° 10′ E). It is steep-to on its NW side. Two rocks, 2 m and 1½ m high, stand on the cay.

Yang-p'u Tsui is the S extremity of a narrow peninsula consisting of low sand-dunes covered with bushes, at the N end of which is a conspicuous white house. **Hsiao-ch'an,** a drying reef, lies between 1 mile SW and 1 mile NW of Yang-p'u Tsui. A light-buoy marks the SW end of Hsiao-ch'an.

Yang-p'u Chiang, at the head of Yang-p'u Wan is entered close S of Yang-p'u Tsui, and affords good shelter for vessels of moderate draught. **Yang-p'u Shih,** a fishing village, is situated on the N side of the bay 1¾ miles NE of Yang-p'u Tsui. A reef lies close off the village.

Yang-p'u Chiang is under development (1987) and

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two berths for ships of 20 000 dwt and three for ships of 5000 dwt are due for completion in 1988–89.

Hsin-ying Chiang, a lagoon, is entered between **Pai-ma-ching Chiao,** a point 2½ miles E of Yang-p'u Tsui and the mainland 3 cables N on which there is a prominent fort. **Tan-hsien** (19° 42′ N, 109° 20′ E) (chart 3991), a walled town and one of the most important trading centres in Hainan Dao, is situated 6 miles E of Pai-ma-ching Chiao. The entrance channel to Yang-p'u Chiang leads through the N and W sides of the bay and is marked by buoys, black spherical to port and red spherical to starboard. There is a least depth of 4·3 m (14 ft) in the channel.

Anchorage may be obtained off Yang-p'u Shih in depths of 9 to 11 m (30 to 36 ft). Small vessels can anchor in Hsin-ying Chiang, 3½ cables E of the prominent fort on the N entrance point, in depths of 7 to 9 m (23 to 30 ft).

Tidal streams run with considerable strength when the tidal range is large; the best time to enter the harbour would appear to be towards low or high water.

Directions for Yang-p'u Chiang. No vessel should attempt to enter without local knowledge. When coming from NW, approach with the 311 m (1021 ft) hill (chart 3991) situated 15½ miles SE of Yang-p'u Tsui, bearing 143°. This leads between the NE extremity of Lin-ch'ang Shih and the light-buoy marking the S end of Hsiao-ch'an. When clear of this light-buoy alter to NE and enter the buoyed channel.

Charts 3991, 3990

Yang-p'u Wan to Bingma Jiao

9.13

Shen-chien Chiao (19° 47′ N, 109° 09′ E), situated 4½ miles N of Yang-p'u Tsui, is a cliffy reef-fringed point forming the extremity of a range of bare red hills, and has a peculiar columnar rock, 18 m high, on it; a pagoda stands on the cape.

Chart 3892

From Shen-chien Chiao to Bingma Jiao, 9 miles NE, the coast is low and sandy, and bordered by coconut palms. The reefs extend as far as ¾ mile offshore in places, but beyond them the coast is relatively steep-to.

A **light** is exhibited from a white tower, 8 m in height, on Bingma Jiao. There is a signal station at the light-structure.

Bingma Jiao (Ping-ma Chiao) (19° 54′ N, 109° 17′ E) is a steep cliff surmounted by a hill with two peaks. **Bijia Ling,** an important landmark in the approach to Qiongzhou Haixia (9.17) with two conical peaks one of which is 207 m high, lies 3½ miles S of Bingma Jiao. **Sung-lin Ling,** a wooded conical hill 197 m (645 ft) high, lies isolated in a plain 10 miles SE of Bingma Jiao (chart 3991).

Houshui Wan

9.14

Houshui Wan is entered between Bingma Jiao and a low point 15 miles E. The shores of the bay are low but several hills make good landmarks.

The bay is fringed by a reef with drying flats at its head. **Linchang Dao,** a large drying reef which is steep-to on its N side, lies in the middle of the bay.

The village of **Xinxing** stands on the E side of the bay 3¼ miles S of T'iao-lou.

Anchorage and directions. Sheltered anchorage in all seasons, may be obtained by small vessels with local knowledge in the SE part of the bay in a depth of 7 m (23 ft), sand. This anchorage can be approached W of Linchang Dao with Sung-lin *Ling* (9.13) bearing 170° or from E with Sung-lin Ling bearing 213°.

9.15

Mined area. A dangerous area due to mines exists between 5 and 15 miles N of Bingma Jiao. See 1.5 and Appendix I. Vessels are recommended to pass S of this area.

Anchoring and fishing are prohibited in a corridor 1½ miles wide extending NNW from a point 9½ miles WSW of Lingao Jiao (below) to Weizhou Dao (8.145).

9.16

Between the E entrance point of Houshui Wan and **Lingao Jiao** (20° 01′ N, 109° 43′ E), a low sandy point 12½ miles ENE, the coast is low, reef-fringed and sandy.

Lingao Jiao Light-structure is a white metal framework tower with red bands, 20 m in height, standing on the point. A **signal station** is situated at the light-structure.

Western Cap, a small hill 14 m (46 ft) high, lies near the coast 1 mile SE of Lingao Jiao. **Gaoshan Ling,** 189 m high situated 6½ miles SW of the point, is prominent and has a somewhat flat summit with two small peaks.

This part of the coast should be given a wide berth.

QIONGZHOU HAIXIA

9.17

Qiongzhou Haixia (Ch'iung-chou Hai-hsia), formerly known as Hainan Strait, lies between Leizhou Bandao and Hainan Dao: it is about 10 miles wide at its narrowest part. The strait is entered from W between Lingao Jiao (9.16) and Jiawei Jiao (8.140), 17½ miles NE.

Rocks and shoals lie in the approaches to the E and W entrances to the strait, but these dangers are more extensive at the E entrance. Within the strait the centre is mostly clear, but nearer to the shore, fringing reefs on both sides are prevalent.

The S side of the strait is indented by many bays which are separated by points varying from low and sandy to steep and rocky. The heads of the bays are mostly shallow.

The coast is fronted predominantly by sandy beaches although there are short stretches of cliffs with scattered rocky points, and is backed by low sand-dunes covered with scrub growth. Scattered palms and other trees grow near the coast.

9.18

Tidal streams. In the fairway of Qiongzhou Haixia, in every 24 hours, the tidal stream is E-going for 8 hours and W-going for 16 hours throughout the year, except for 2 or 3 days in a lunation, when the streams turn four times daily and their rates are only a knot or less. The streams follow the general direction of the channels when setting strongly; at other times their direction is influenced by seasonal currents, towards S during the NE Monsoon, and towards N during the SW Monsoon.

At the W end of the strait the flood streams mostly set NW into the Gulf of Tonkin at rates of 1 to 3 knots, and the ebb streams set SE into the strait at about the same rate. They are strongest off Jiaowei Jiao. Within the strait these streams tend to be less variable. The flood stream sets W at a rate of 1½ to 2½ knots, and the ebb stream sets E at a rate of 2½ to 4 knots. At the E end of the strait the flood stream tends to set SW into the strait on the N side and NW into the strait on the S side; the ebb stream sets in opposite directions.

Admiralty Tide Tables give day to day predictions; the

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times predicted hold good from the E approaches to the strait as far W as Dao Bach Long Vi (7.63).

Overfalls and **tide-rips** exist throughout the strait, but particularly between Baishajiao (9.27) and Mulan Tou (9.33). There are smooth, oily patches about 15 m in diameter with rough water round the edges, but which appear not necessarily to be caused by inequalities in the bottom. There are also patches of discoloured water, which usually consist of vegetable matter from the several rivers, and which have the appearance of shoals.

Visibility. During the NE Monsoon, and especially from January to March, visibility in Qiongzhou Haixia is poor; with little warning it may be reduced to two miles or less, by drizzle or mist.

Fishing stakes, the positions of which are frequently altered and may be found in depths of 20 m (11 fm) or more near both shores of the strait.

Western approaches to Qiongzhou Haixia

9.19

Several sandy banks lie in the W approaches to Qiongzhou Haixia. **Pei Sha,** with a least depth of 5·4 m (18 ft) over it, extends 11 miles E from a position 13 miles NNE of Bingma Jiao (9.13) and is the W of these banks. A shoal with a similar depth lies 5 miles N of the E end of Pei Sha.

South side of Qiongzhou Haixia

9.20

Between Lingao Jiao (9.16) and **Hung-tao Tsui,** 6 miles ESE, there is a bay, in which the depths decrease gradually towards the shore. In the SE corner of the bay, 1¼ miles SSW of Hung-tao Tsui, there is a shallow harbour with a small fort on its W entrance point.

Ma-niao Chiang is entered between Hung-tao Tsui and **Tao-ling Tsui** (19° 59′ N, 109° 53′ E), 4 miles E. The shores of this bay are low, cultivated and reef-fringed with drying flats at its head. An islet lies ¼ mile W of Tao-ling Tsui on the outer end of a reef which fringes the E side of a harbour. **Pao Yu,** a small projection, lies 1½ miles S of Tao-ling Tsui; a small fort stands at the head of the harbour, 1¾ miles SSW of Pao Yu.

Anchorage, with good shelter from E winds, may be obtained ½ mile NNW of Pao Yu, with the islet lying off the W side of Tao-ling Tsui bearing 021°, in a depth of 7 m (23 ft), blue clay. There is also good anchorage during W winds in the W part of the harbour in about the same depth.

It has been reported that Mai-niao Chiang is not a good typhoon anchorage.

9.21

Between Tao-ling Tsui and **Yubao Jiao** (20° 00′ N, 109° 56′ E), 3 miles E, the coast consists of red cliffs 15 to 18 m high and is steep-to; the black lava underlying the soil below these cliffs has the appearance of a high-water mark. Yubao Jiao can be identified by a detached piece of cliff, 15 m (48 ft) high, lying close N of it.

9.22

Chengmai Wan is entered between Yubao Jiao and Chengmai Jiao (20° 04′ N, 110° 09′ E) (9.23), 13 miles ENE. The land is low round the bay, rising gradually towards **Maan Ling,** a saddle between two conspicuous peaks, situated 8½ miles SSE of Chengmai Jiao; the S peak is 221 m high. The country is cultivated and the coast is bordered with trees and bushes.

Ma-t'sun fort is situated on a small projection 5 miles ESE of Yubao Jiao; close SE of the fort is the entrance to **Hua-ch'ang Chiang,** a large shallow lagoon which extends some miles inland. From the SW entrance point of this lagoon to a point 1½ miles SSE of Yubao Jiao the coast consist of sand-hills, 6 to 9 m (20 to 30 ft) high. **Fah Yung,** a hill 61 m (200 ft) high, lies on the E side of the lagoon 1 mile within the entrance. **Dashan Ling,** a solitary hill 143 m (470 ft) high with a conspicuous peak, lies 3 miles ESE of Fah Yung.

Between the entrance to Hua-ch'ang Chiang and **Tong Sui,** a point 3 miles NE, the coast consists of low cliffs. A pagoda stands close E of Tong Sui.

Between Tong Sui and Chengmai Jiao, 8 miles NE, there is a bay, the shores of which are low and sandy. The entrance to **Chengmai Chiang,** another shallow lagoon, is situated in the SW part of the bay.

Anchorage, with good holding ground, may be obtained by vessels with local knowledge in the SW part of Chengmai Wan, with Ma-t'sun fort bearing 158°, distant 1 mile, in a depth of 6 m (20 ft), mud. There is also anchorage in the E part of the bay 1½ miles SW of Chengmai Jiao, in a depth of 7 m (23 ft), but the approach to this anchorage is somewhat obstructed by fishing stakes.

A typhoon has been ridden out in Chengmai Wan.

Chart 37

Haikou Wan

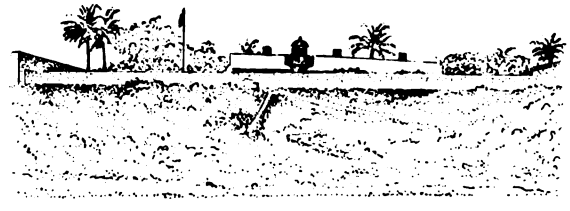
9.23

Haikou Wan is entered between Chengmai Jiao and Baishajiao (9.27), 8½ miles E.

Chengmai Jiao is low and sandy with a below-water rock close off it. Depths of less than 5 m (16 ft) extend 1 mile from the point which should be given a wide berth.

Xiaomao Shan (20° 03′·3 N, 110° 11′·0 E), a conspicuous conical mound 20 m high situated 1½ miles E of Chengmai Jiao, lies at the NW end of a range of sand-hills on the SW side of Haikou Wan.

Midway between the two entrance points to Haikou Wan, there is a ridge of reddish cliffs on which are some prominent houses. **Xiuying Light** is exhibited from a white round metal tower, 7 m in height, situated near the shore on the SW end of this ridge. The light-tower is not prominent as it stands in front of a low white building which is, however, easily seen. A conspicuous white house stands 6 cables WNW of the lighthouse.



Xiuying Lighthouse
(Original dated 1932)

9.24

Practically the whole of Haikou Wan is encumbered by an area of shallow water with depths of less than 5 m (16 ft); near the head of the bay the depths are considerably less. A number of dangerous wrecks and obstructions lie in the bay on each side of the leading line. **Shuang Tan,** with a least depth of 0·8 m (2 ft) over it, lies in the NW approach to the bay and is marked on its N side by a light-buoy.

Fishing stakes extend up to ¾ mile off the coast, NE of Xiaomao Shan.

A number of areas in which anchoring and fishing are prohibited are shown on the chart.

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Tidal streams in Haikou Wan set NE for about 8 hours and SW for about 16 hours at rates of 1½ to 2 knots.

Anchorages. The quarantine anchorage is situated 4 miles N of the harbour entrance.

Anchor berths Nos 1, 2 and 3 are situated E of the entrance channel between 2¼ miles and 3 miles NNE of the harbour entrance. Anchor berth No 4 is W of the entrance channel, 1 mile from the harbour entrance.

Junks and other small craft usually anchor in the S entrance to Haikou Chiang, 1¼ miles NW of the obelisk, in a depth of 3 m (10 ft).

These anchorages are partially protected by the sand and mud-banks which extend from the SE shore, especially the anchorage for small vessels, but they are open to winds between W and NE, when a heavy and confused swell is sometimes felt which makes cargo work impracticable.

9.25

Haikou Gangchi is situated at **Xiuying** on the S side of Haikou Wan, 4 miles WSW of the city of **Haikou** (20° 03′ N, 110° 20′ E). The harbour is open to foreign shipping.

Exports are rubber products, sugar, cattle and tropical crops: imports are rice, fertilizer, cement and coal. The port handles about 1 million tons of cargo a year.

The harbour has been artificially constructed and is protected from N by a detached breakwater. A **light** is exhibited on the W head of the breakwater. The **entrance channel,** with a depth of 4 m but liable to silt, is marked by a pair of **leading lights,** in line bearing 163°: these lights lead W of the detached breakwater, which is only 1·2 m above the level of high water.

The front light is exhibited from a white metal framework tower, 27 m in height, with a triangular daymark point up, and the rear from a black framework tower 27 m in height with a triangular daymark point down.

The entrance channel is marked by light-buoys.

Pilotage is compulsory: the pilot boards in the quarantine anchorage.

Wharves. A deep water wharf, 300 m long, on the E side of the harbour has 3 berths for vessels up to 5000 dwt.

On the S side of the harbour there are a passenger terminal and a barge wharf.

Vessels of 10 000 dwt are handled at anchor in the outer harbour.

Facilities. Cranes of 20 tons and mobile cranes are available.

Tugs are available.

Deratting can be carried out: see 1.92.

There is a hospital.

Supplies. Fresh provisions can be supplied with prior notice.

Fresh water is available.

Communications. There is occasional communication with other ports in China, and also with Singapore, Bangkok and Hong Kong.

Ferries ply to Beihai (8.136) and Zhanjiang (10.30).

A signal station at which storm signals are shown is situated in the harbour area. There is a coast radio station and a port radio station.

Regulations. The following information is extracted from the harbour regulations; see also 1.20, 1.22 and 9.52.

No vessels, except men-of-war, may use swinging booms. Swinging booms should be rigged in from sunset to sunrise.

Cargo boats are prohibited from boarding vessels until the Customs Officer is on board. Masters of vessels should assist to their utmost the harbour authorities in having this rule observed.

The following flags of the *International Code of Signals* are used for the following purposes:

Flag	*Signification*
C	Customs Officer wanted
O	Stevedores wanted
Q	Quarantine

9.26

Haikou town, with a population of about 50 000 and a large number of houses outside the walls on its N and NW sides, is situated on the S side of **Haikou Chiang,** 4 miles NE of **Haikou Gangchi.** It is approached through the S entrance to the river where the channel through the mud-banks off the river entrance is shallow and can only be used by boats of shallow draught at high water. These mud-banks are almost covered at high water, and are subject to change.

There is a bund, 185 m long with a depth of about 1 m (3 ft) alongside at Haikou.

9.27

Baishajiao (20° 04′ N, 110° 18′ E) is the farthest W of a group of islands lying on a drying bank on the E side of Haikou Wan.

Chart 3892

9.28

Puqian Wan lies between the E mouth of Haikou Chiang, 4 miles E of Baishajiao, and a point 11 miles farther E. The shore of the bay is low and sandy and intersected by creeks and backed by trees from 1½ to 2 miles inland. There are usually numerous fishing stakes in the bay. A large shallow lagoon is entered from the SE side of the bay: the village of Puqian lies on the E side of the entrance.

9.29

Baisha Qiantan, a bank with a least depth of 0·4 m over it, extends 7½ miles ENE from the E mouth of Haikou Chiang.

Anchorage can be obtained in bad weather in the W part of the bay S of Baisha Qiantan: the bottom is stiff mud. There is also anchorage 1½ miles W of the E entrance point of the bay in a depth of 11 m (36 ft), sand and mud, with good holding ground.

9.30

Tidal streams. During the W-going stream in the strait there is a set into Puqian Wan.

9.31

Qixing Ling (20° 05′ N, 110° 36′ E), 1½ miles E of the E entrance point of Puqian Wan, has seven peaks but more than four are seldom visible at one time. The highest peak, on which there is a conspicuous pagoda, has an elevation of 136 m.

9.32

Hainan Wan lies between the E entrance point of Puqian Wan and Mulan Tou, a headland 7½ miles NE. The shore of the bay consists of sand backed by sand-hills, 15 m to 20 m high and covered by scrub and a few trees. The bay is foul up to a distance of ¾ mile offshore with some above-water rocks in places. Anchorage can be obtained in the E part of the bay in a depth of 13 m (43 ft).

9.33

Mulan Tou (20° 10′ N, 110° 41′ E) is composed chiefly of sand covered with low scrub almost to the water's edge: vegetation ceases except for a few patches 1

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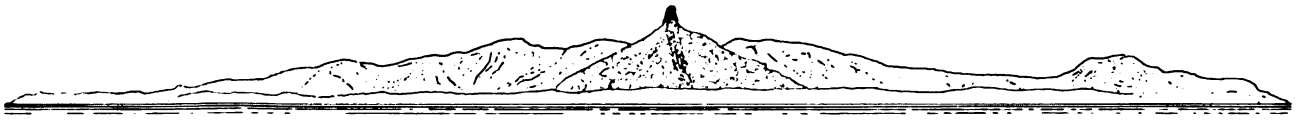

Qixing Ling pagoda bearing 110°, 8 miles
(Original dated 1923)

mile SE of the point. There is a prominent flat-topped mound ½ mile SW of the N extremity of Mulan Tou and a hill, 51 m high, stands 1½ miles S of the headland.

Mulan Tou Light-structure is a round stone tower, 15 m in height.

A reef, the outer end of which dries 1·2 m (4 ft), extends ½ mile N from Mulan Tou. A stone post stands near the N extremity of this reef.

9.34

Nan Shuidao, the SE entrance to Qiongzhou Haixia, lies between the dangers fronting the coast from Mulan Tou to Baohu Jiao (9.86), 16 miles SE, and Hainan Tou Tui (9.35), a detached shoal E of Mulan Tou. The channel is only ¼ mile wide at its narrowest part between the 10 m depth contours and in view of the strong tidal streams it should not be used in poor visibility or at night. It is not open to navigation by foreign vessels. See 9.44 for mined area.

On the SW side of Nan Shuidao between Mulan Tou and Baohu Jiao (20° 01′ N, 110° 56′ E) (9.86) there is a bay, the shores of which are backed with sand-hills 9 m to 21 m high. **Lingtou Ling,** 60 m high, stands 5 miles S of Mulan Tou and appears as a short black line above the sand-hills: it is a useful mark when making this coast from the E. A conspicuous white sand cliff, 51 m high, is situated 1½ miles SE of Mulan Tou. At the centre of the bay rocks extend nearly 2 miles NE from **Sandou Jiao,** a reef fringed, sandy projection, 25 m high.

Rocks extend nearly 2 miles SSE from Mulan Tou at the N end of the bay and shoal water extends a further 3 miles SE.

Hainan Tou Tui is a detached bank which extends 7 miles ESE from a point 1½ miles ENE of Mulan Tou, forming the NE side of Nan Shuidao. There are drying patches on the bank. Shoal water extends a further 7 miles ENE from the SE extremity of Hainan Tou Tui.

9.35

Tidal streams off Mulan Tou. The W-going stream sets strongly towards the reef extending N from Mulan Tou. When W of Mulan Tou the in-draught into Puqian Wan must be allowed for. The tidal streams set very strong, 4 to 5 knots at times, across the NW entrance to Nan Shuidao.

9.36

Directions for Nan Shuidao. When approaching Nan Shuidao from E, Qizhou Liedao (9.87) should be sighted whence course may be shaped for Baohu Shan (9.86) on a bearing of not less than 215°. From a position 4 miles NNE of Baohu Jiao the conspicuous pagoda on Qixing Ling (9.31) should be steered for bearing 272° until Mulan Tou bears 302°, when that point should be steered for on that bearing. Vessels are recommended to favour the SW side of the fairway while passing the SW side of Hainan Tou Tui and the NE side while passing the shoals SE of Mulan Tou in order to give these dangers a wider berth.

When the flat-topped mound SW of Mulan Tou (9.33) bears 276° or the 51 m hill S of Mulan Tou bears 268° course can be altered to 320° until abreast the stone post on the reef N of Mulan Tou. This should be rounded at a distance of 3½ cables in order to clear some off-lying rocky patches and the dangerous wreck 1½ cables N of the reef.

At times it is advisable to pass E and N of Xianan Qiantan (9.47) due to the strong tidal streams in this area. A danger angle of 40° between the flat topped mound SW of Mulan Tou (9.33) and Qixing Ling pagoda will carry the vessel round the bank and well S of Xifang Qiantan (9.46).

Anchorage may be obtained in Nan Shuidao about 5 miles S of Mulan Tou and 2 miles offshore in a depth of 15 m (49 ft), sand and mud. This anchorage is slightly protected by Hainan Tou Tui.

North side of Qiongzhou Haixia

9.37

Jiaowei Jiao (20° 14′ N, 109° 55′ E), the NW entrance point of Qiongzhou Haixia, is the SW extremity of a sandy islet, 12 m (40 ft) high lying on the reef which extends 2 miles S from the mainland.

Jiaowei Jiao Light-tower is a white metal framework tower, standing on the S extremity of Jiaowei Jiao. It was reported in 1965 that the light-tower was difficult to distinguish from the trees near it.

Jiaowei Jiao Light-tower
(Original dated 1932)

A rock, with a depth of 1·8 m (6 ft) over it and steep-to on its S side, lies at the S extremity of the reef 1 mile SSW of Jiaowei Jiao Light-tower.

Considerable **overfalls** extend some distance S of this rock and a wide berth should be given to Jiaowei Jiao as the **tidal stream** sets strongly onshore.

There is a depth of 9 m (29 ft) 3 miles S of Jiaowei Jiao.

9.38

Jiaowei Wan is entered between Jiaowei Jiao and a point 11½ miles E. The bay is shallow and depths of less than 5 m (16 ft) extend up to 5 miles from its head. The W side of the bay is low, consisting of sand-hills topped with bushes which become bare as Jiaowei Jiao is approached. The land backing the E part of the bay rises gradually to **Shi Ling,** a hill 149 m high which is prominent when viewed from W, situated 6 miles N of the E entrance point of the bay. **Xuwen pagoda** stands

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at an elevation of 111 m on the SE side of Shi Ling, 3 miles ESE of the summit.

Good **anchorage** may be obtained in the W part of Jiaowei Wan with shelter from NW winds, with the light-tower bearing 277° distant 1½ miles in a depth of 9 m (30 ft), mud.

Several islets, one of which is 6 m (20 ft) high, lie a short distance SW of the E entrance point of the bay (20° 15′ N, 110° 07′ E); a rock, with a depth of less than 2 m (6 ft) over it, lies SW of these islets and 2 miles from the point, near the outer edge of the coastal bank.

A coral bank with a depth of 1·3 m (4 ft) over it, lies 3 miles SW of the E entrance point of Jiaowei Jiao. There are heavy overfalls in the vicinity of this patch, and vessels should not attempt to pass N of it, as there are other patches with less depths over them between it and the outer edge of the coastal bank.

9.39

Between the E entrance point of Jiaowei Jiao and **Zong Jiao** (20° 14′ N, 110° 10′ E), 3¼ miles E, the coast is nearly all fringed by a reef extending ½ mile offshore. Zong Jiao has several trees on it, and a spit, with a depth of 0·8 m over it, extends ½ mile S from the point. There are **overfalls** off the point.

9.40

Haian Wan, which is shallow, is entered between Zong Jiao and **Paiwei Jiao,** 6 miles E. On Paiwei Jiao is a conical mound, 24 m (80 ft) high, and close S of the point is an islet, 1½ m (4 ft) high. A **light** is exhibited from a stone column on Paiwei Jiao.

Haian village stands on the S side of a small shallow inlet near the middle of the head of Haian Wan.

Good **anchorage** may be obtained in Haian Wan with a white fort near Haian village bearing 338° distant 1¾ miles in a depth of 9 m, mud.

9.41

The coast between Paiwei Jiao and **Hongkan** (20° 18′ N, 110° 24′ E), 7½ miles NE, consists of sand-hills surmounted by patches of scrub; it has not been surveyed. Foul ground, on which there are fishing stakes, extends from 1½ to 1¾ miles from Hongkan.

A **light** is exhibited from a black metal framework tower with white bands, 15 m in height, on Hongkan.

Anchorage may be obtained during N winds by small vessels with local knowledge with Hongkan bearing 068° distant 1½ miles, in a depth of 13 m (43 ft).

9.42

Between Hongkan and **Shangouhou** (20° 25′ N, 110° 31′ E), 9½ miles NE, the coast is mostly backed by sand-hills 20 m to 25 m high. In some places in the S part of this coast there are red cliffs. **Dangqiao Ling,** 48 m high, is a hill close to the shore 2 miles NE of Hongkan and rocks extend 1½ miles from the shore abreast the hill. Shanzhu Ling, 44 m high, is situated 1 mile inland of Shangouhou.

A light is exhibited from a white round tower 6 m in height on Shangouhou.

Shangouhou is the NE entrance point of Qiongzhou Haixia.

Eastern approaches to Qiongzhou Haixia

9.43

The E entrance to Qiongzhou Haixia is encumbered with numerous sandbanks, on which the sea generally breaks during the NE Monsoon or when there is an E swell. There are three main channels between these banks; Zhong Shuidao (9.49), the middle channel, is buoyed and is the only channel open to foreign shipping.

Tidal streams in these channels are uncertain and only Zhong Shuidao should be used at night. See also 9.18.

9.44

Mined area. A dangerous area due to mines exists in the E entrance and approaches to Qiongzhou Haixia. A swept channel, marked by light-buoys is maintained through the area. See 1.5 and Appendix I.

9.45

Luodou Sha, a sandy cay 2 m high, lies 5½ miles SE of Shangouhou. Shoal water extends 14 miles NE from Luodou Sha.

Xibei Qiantan, with a least depth of 2·0 m (6 ft) over it, lies 14 miles ESE of Shangouhou.

9.46

Xifang Qiantan, with a least depth of 1·8 m (6 ft) over it, lies SW of Xibei Qiantan and 7 miles N of Mulan Tou (20° 10′ N, 110° 41′ E).

Beifang Qiantan, with its W end 11 miles NE of Mulan Tou, extends 12 miles NE. The least depth over this bank is 0·5 m (1 ft), 14 miles NE of Mulan Tou.

9.47

Xinan Qiantan (20° 12′ N, 110° 37′ E), with a least depth of 1·7 m (5 ft) over it, lies on the S side of the strait 4 miles WNW of Mulan Tou.

Nanfang Qiantan, with a least depth of 1·9 m (6 ft) over it, lies between 5 miles and 16 miles ENE of Mulan Tou.

Hainan Tou Tui, S of Nanfang Qiantan, is described in 9.35.

9.48

Bei Shuidao, the N channel, lies between Xibei Qiantan and Beifang Qiantan. It is not recommended being unmarked and not straight.

9.49

Zhong Shuidao, the middle channel, leads between Xifang Qiantan and Beifang Qiantan to the N and Xinan Qiantan and Nanfang Qiantan to the S. The channel swept through the mined area (9.44) is marked along its centre line by light-buoys (safe water).

Depths of 16 m (52 ft) can be carried in mid-channel. The channel is open to foreign shipping.

9.50

Nan Shuidao, the S channel, which leads S of Hainan Tou Tui, is described in 9.34.

Charts 3892, 3990

Directions for Qiongzhou Haixia

9.51

From West. When entering the strait from W, the best route leads S of Pei Sha (9.19), giving the N coast of Hainan Dao a berth of at least 4 miles, passing S of the mined area described in 9.44, and avoiding the shallow water 7½ miles WNW of Lingao Jiao (9.16). In the strait a mid channel course can be taken.

At the E end, Zhong Shuidao should be used, the line of light-buoys being followed through the strait.

From East. Having sighted Beishi (9.87) and Baohu Jiao (9.86) course should be steered for No 1 Light-buoy at the entrance to Zhong Shuidao, thence the line of light-buoys should be followed through the strait.

The best landmarks to use in navigating Zhong Shuidao if light-buoys are missing or out of position are Beishi (9.87), Baohu Shan (9.86) and Mulan Tou (9.33).

After clearing Zhong Shuidao, if bound for Haiphong, vessels should keep on the S side of the strait and follow the direction from W, given above, in reverse, and thence steer towards Île Bach Long Vi. E or W currents of considerable strength; may be

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experienced on this track, but very little N or S set need be feared unless the monsoon is very strong.

If bound for Beihai (8.134), Jiaowei Jiao should be rounded at a distance of 5½ miles, avoiding the banks mentioned in 9.19, W of it. After passing these banks steer for Xieyang Dao (8.144), and after sighting that island, pass W of Weizhou Dao before steering for Beihai.

Directions for Nan Shuidao are given in 9.36.

REGULATIONS FOR PASSAGE THROUGH QIONGZHOU HAIXIA

Chart 3892

9.52

The following are extracts from the Regulations for the Passage of Non-military Vessels through Qiongzhou Haixia promulgated by the government of the People's Republic of China on 8th June, 1964.

The water area bounded by lines joining Shangouhou (20° 25′ N, 110° 31′ E) to Mulan Tou (20° 10′ N, 110° 41′ E) on the E side and Jiaowei Jiao (20° 13′ N, 109° 55′ E) to Lingao Jiao (20° 01′ N, 109° 43′ E) on the W side are declared to be Chinese internal waters under the control of Qiongzhou Haixia Authority. This area is known as the Control Area.

A vessel wishing to pass through the Control Area should apply for permission 48 hours in advance giving the following information:

Name.
Nationality.
Gross tonnage.
Speed.
Hull colour and funnel marks.
Port of departure and destination.
Date and time of passage.

Having obtained permission the authority should be informed of the exact time of arrival 24 hours in advance or 2 hours after leaving the port of departure.

All communications to the authority should be passed through the Haikou branch of the China Ocean Shipping Agency.

Vessels may pass through the Control Area in daytime only. The authority will fix the times of entry and exit depending on the vessel's speed.

Vessels passing through the strait must keep to the channel through Zhong Shuidao, thence they must keep N of a line joining positions 4 miles towards Shangouhou from Mulan Tou and 4 miles towards Jiaowei Jiao from Lingao Jiao; and S of a line joining positions 6 miles towards Shangouhou from Mulan Tou, 4 miles S from Paiwei Jiao and 14 miles towards Jiaowei Jiao from Lingao Jiao.

While within the Control Area vessels may not normally use radar. In reduced visibility application to use it should be made to the authority and in emergency it may be switched on before receiving permission. If it has been used a detailed report giving times of switching on and off and the circumstances should be submitted to the authority.

Vessels may not take photographs, take soundings nor do anything in violation of the laws and regulations of the People's Republic of China while within the Control Area.

9.53

Spare.

SOUTH-WEST SIDE OF HAINAN DAO

Charts 3989, 3991

9.54

Aspect. On the W side of Hainan Dao there are several mountain summits which are useful for identifying the coast:

Chien-feng Ling (18° 43′ N, 108° 52′ E), 1335 m (4380 ft) high, situated 17 miles NE of Ying-ko Tsui (9.56), the SW extremity of Hainan Dao, is a good landmark. It shows as a precipitous crater from SE and NW but when viewed from W it appears as a single pinnacle.

Ju Ling, 889 m (2930 ft) high, lies 20 miles NW of Chin-mu Chiao (9.64), the S extremity of the island, and 7 miles inland. From E the summit has the appearance of a horn, but from W it is rounded.

Tung-ta Ling, 821 m (2692 ft, charted as 2743 ft) high, lies 17 miles N of Chin-mu Chiao.

9.55

Winds. Within 5 or 6 miles of this part of the coast, the NE Monsoon blows as follows:

Off Ying-Ko Tsui (9.56)	From N to NNW.
Off Fu-jung-ch'i (9.57)	Light and variable.
Off Nan-shan Chiao (9.58)	From NE or SE.
Off Yu-lin Chiang (9.64)	From NE or ENE.

In all the above areas there is a tendency for the NE Monsoon to blow off the land at night.

Ying-ko Tsui to Lu-hui-t'ou Chiao

9.56

The coast to W and N of Ying-ko Tsui (18° 30′ N, 108° 41′ E) is described in 9.2.

Ying-ko Tsui, the SW extremity of Hianan Dao, is bare and sandy, and the land near it is flat. A white pagoda, surrounded by trees, stands close to the coast 2 miles E of the point. **Chin-chi Ling,** 118 m (387 ft) high, is situated 5 miles ENE, and **Wo-lung Ling,** 251 m (824 ft) high, 7 miles NE of the point, respectively.

Ying-ko-hai, a large fishing village, stands on Ying-ko Tsui. A reef fronts the village and numerous fishing stakes extend a considerable distance offshore. Landing at the village should be effected by local boats.

A **light** is exhibited from a metal framework structure, painted black and white in bands, equipped with a radar reflector, on Ying-ko Tsui; its charted position is approximate.

Anchorage, may be obtained during the NE Monsoon, 2 miles SE of Ying-ko Tsui, off the white pagoda, in depths of 11 to 15 m (36 to 49 ft), sand. This anchorage becomes untenable during the SW Monsoon.

9.57

Between Ying-ko Tsui and Fu-jung-ch'i, 20 miles ESE, the coast is low and bordered by sandy hillocks, 6 to 12 m high. **Wang-lou Chiao** is situated 11 miles ESE of Ying-ko Tsui, and close W of this point a stream discharges into the sea through a shallow lagoon with marshy land on either side. Abreast Wang-lou Chiao, the 10 m (33 ft) line lies 6½ miles off-shore and inside it there are several shallow patches with depths of 5·5 m (18 ft) or less over them.

Fu-jung-ch'i (18° 22′ N, 108° 59′ E) has two hummocks, 34 m high, on its extremity. The high land close to the coast at this point then recedes to form a background to a level plain, closing the coast again at Nan-shau Chiao (9.58).

Hsi-ku Tao, 74 m (243 ft) high with a rock 1½ m (5 ft)

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high 2 cables NE of it, and **Tung-lo Tao,** 70 m (230 ft) high, lie, respectively, 3 miles SW and 2 miles S of Fu-jung-ch'i. A shoal, with a least depth of 5·5 m (18 ft) over it, lies 2 miles S of Hsi-ku Tao.

An obstruction with a least depth of 5·8 m (19 ft) over it lies 8 miles SW of Hsi-ku Tao: its charted position is approximate.

A light is exhibited from a white metal framework structure on Hsi-ku Tao.

Caution. Tide-rips and eddies are very frequent off this coast, and their appearance has often been reported as shoals or breakers.

9.58

Yai-chou Wan lies between Fu-jung-ch'i and Nan-shan Chiao, 11 miles ESE. **Ning-yuan Ho** flows into the E end of the bay, where the coast is low, 5 miles NW of Nan-shan Chiao, and is reported to be navigable by boats in the rainy season only. **Yai-ch'eng,** the principal trading place on this part of Hainan Dao, stands 3 miles up river.

Anchorage may be obtained in Yai-chou Wan during the NE Monsoon 2 miles from the beach at its head in depths of 9 m (30 ft), with Nan-shan Chiao bearing 120° and Hsi-ku Tao bearing 270°. From this anchorage to the shore the depths decrease gradually. Yai-chou Wan is fully exposed to S and SW winds.

Nan-shan Chiao (18° 17′ N, 109° 11′ E) rises to an elevation of 489 m (1604 ft), 1 mile N of the point. Its summit is flat and bold with a slight saddle in it.

A pagoda stands on a hill 3½ miles E of Nan-shan Chiao.

A rock, which dries 1·8 m (6 ft), lies 4 miles SW of Nan-shan Chiao.

Charts 3991, 3893

9.59

Between Nan-shan Chiao and Lu-hui-t'ou Chiao (9.60), 18 miles ESE, the coast is backed by hills and intersected by narrow valleys. From Nan-shan Chiao the coast trends E for 9 miles to a point ½ mile SW of **Chiao Ling** (18° 17′ N, 109° 21′ E), 108 m (355 ft) high, off which a reef with depths of 0·6 m (2 ft) over its outer end, extends 1¼ miles SW. Some rocks stand on this reef, the largest of which is 9 m (31 ft) high. A **beacon** stands on the side of a hill 1 mile NNW of Chiao Ling, and another on a hill 5½ miles farther W.

Chart 3893

San-ya Chiang

9.60

San-ya Chiang is entered between Chiao Ling and Lu-hui-tou Chiao (18° 11′ N, 109° 28′ E), 9½ miles SE. **Lu-hui-t'ou Chiao** is the S extremity of a peninsula which rises to **Lu-hui-t'ou-Ling,** 276 m (907 ft) high, situated ½ mile N of the point. **San-ya Chiao,** situated 1½ miles NNW of Lu-hui-t'ou Chiao, is the W extremity of the peninsula.

Tung-mei Chou (Tung Chou), 61 m (201 ft) high, lies 3 miles W of San-ya Chiao. The island is fringed by a reef; a spit, with depths of less than 10 m (33 ft) over it, extends 1 mile N. **Tung-chou Chiao,** a 7·6 m (25 ft) patch, lies 4 cables E of the island.

San-ya Chiao, a detached shoal over which there is a depth of 8·8 m (29 ft), lies 2½ miles NE of Tung-mei Chou.

A **submarine cable,** marked at each end by a beacon is laid between Tung-mei Chou and the shore 4 miles N.

Shuang-fan Shih, a group of rocks with two islets 10 and 8 m (34 and 26 ft) high, lies 1¼ miles WSW of the S extremity of Tung-mei Chou.

Hsi-mei Chou (Hsi Chou), 123 m (405 ft) high and wooded, is situated 2¼ miles WNW of Tung-mei Chou. It is fringed by a reef and there is a small village on its NE side. **Ling-tzu Pi,** an islet 37 m (122 ft) high, lies close off the SW extremity of Hsi-mei Chou to which it is joined by foul ground. **Pan-lu Shih,** a rock with a depth of 0·9 m (3 ft) over it, lies 8½ cables SW of Ling-tzu Pi.

Caution. Vessels are recommended not to pass between Tung-mei Chou and Hsi-mei Chou.

9.61

Mined area. A dangerous area due to mines exists in the approaches to San-ya port. When approaching the port, vessels should pass W and N of Hsi-mei Chou, keeping to the recommended route. See 1.5 and Appendix I.

9.62

The port of **San-ya** lies on the E side of San-ya Chiang, and is entered between **Hsiao Chou,** an islet 24 m (80 ft) high, situated at W end of a drying reef extending from the shore, 1½ miles NE of San-ya Chiao, and the SW end of Pai-p'ai, 6 cables NNW.

Pai-p'ai is a reef which dries 1·2 m (4 ft) and extends NE for a distance of 7 cables: the NE end of the reef is marked by a buoy (red can).

Shen Chou, a rock 4 m (12 ft) high, stands on the N edge of the drying reef extending from the shore 6½ cables ENE of Hsiao Chou.

The town of San-ya, a large fishing station, is situated along the N shore of the port. Two buoys (black conical and red conical) moored, respectively, 5 and 8 cables E of the SW end of Pai-p'ai mark the channel into the port.

The depth in the channel is 7 m (23 ft).

A wharf about 700 m long at the river mouth can accommodate seven vessels up to 5000 dwt.

Larger vessels are loaded and discharged by lighter at the anchorage in San-ya Chiang.

There is a supply base for the offshore oil and gas exploration industry.

Facilities. There are two tugs.

Mobile cranes up to 36 tons capacity are available.

There is a hospital at San-ya.

Development. It is reported (1987) that Pai-p'ai reef is being reclaimed and connected to the shore by a causeway. Five berths to accommodate 10 000 dwt vessels are planned.

Communications. An airfield is situated at **San-ya Chieh,** 4 miles N of San-ya.

Anchorage during the NE Monsoon may be obtained outside the port in a depth of 9 m (30 ft) or inside the entrance in a depth of 4 m (13 ft), good holding ground. The anchorage outside should be approached with Shen Chou bearing 087° and vessels should anchor as convenient. Boats and junks may obtain shelter in a small river which discharges into the SE part of the port.

9.63

Three piers extend from the NE shore of San-ya Chiang 3 miles NNW, and 1¾ and 1½ miles N, respectively, of Pai-p'ai.

Yu-lin Chiang

9.64

Yu-lin Chiang is entered between Lu-hui-t'ou Chiao (18° 11′ N, 109° 29′ E) (9.60) and Chin-mu Chiao, 5½ miles ESE. The bay is free of dangers over ¼ mile offshore, but within this distance its shores are reef-fringed in places. The harbour at the head of Yu-lin

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Chiang affords the best anchorage on the S side of Hainan Dao.

Tidal streams must be taken into account when rounding Lu-hui-t'ou Chiao. The E-going stream runs very strongly.

Yu-lin Chiao (18° 12′ N, 109° 32′ E), 3½ miles ENE of Lu-hui-t'ou Chiao, is the S extremity of a small peninsula which divides the N part of the bay into two, and forms the W side of the entrance to the inner harbour (9.67). **Tu-wei Ling,** the summit of the peninsula, rises to an elevation of 152 m (498 ft) 1 cable N of Yu-lin Chiao.

There is a signal station on Tu-wei Ling.

On the W side of Yu-lin Chiang between Lu-hui-t'ou Chiao and Yu-lin Chiao there is a bay, divided near the middle by **Tung-hai Chiao.** A rock, which dries 0·6 m (2 ft), lies 7 cables ENE of Lu-hui-t'ou Chiao and 2 cables offshore.

Chin-mu Chiao (18° 10′ N, 109° 34′ E), 45 m (149 ft) high, is the E entrance point of Yu-lin Chiang and is also the S extremity of Hainan Dao. It is the S end of a steep-to, bold and rocky peninsula which rises to an elevation of 258 m (847 ft) in **Hu-t'ou Ling,** ¾ mile NNW of the point.

A light is exhibited from a white tower about ½ mile NW of Chin-mu Chiao and there is a signal station on Hu-t'ou Ling. The charted positions of both these are approximate.

Chan-ching Chiao, 40 m (132 ft) high, is situated 1¼ miles NW of Chin-mu Chiao. Between these two points there is a bluff which has two vertical streaks running down to the sea.

Shen Tao, 28 m (93 ft) high, lies close offshore 1 mile NNE of Chan-ching Chiao, and is joined to the main island by foul ground.

Lo-tao Chiao is situated 1¼ miles NNW of Shen Tao.

A pier, near the root of which is a conspicuous white chimney, 55 m (180 ft) in height, and some buildings, is situated at the head of a bay 3 cables N of Lo-tao Chiao.

Anchorage, sheltered during the NE Monsoon, may be obtained 3½ cables W of Lo-tao Chiao in a depth of 13 m (43 ft), mud, sand and shells, with the conspicuous chimney bearing 044° and Tung Chiao (9.66) bearing 321°. During the SW Monsoon the anchorage is exposed and heavy swells are experienced.

9.65

Mined area. A dangerous area due to mines exists in Yu-lin Chiang and its approaches. See 1.5 and Appendix I.

Yu-lin

9.66

Yu-lin is a small harbour which is entered between **Hsi-Chiao,** a low sandy point situated 1 mile N of Yu-lin Chiao and Tung Chiao, ¼ mile E. A rocky patch, which dries, lies on the W side of the entrance channel 2 cables SSE of Hsi-Chiao (18° 13′ N, 109° 32′ E).

A **light** is exhibited from a structure standing 1 cable SSW of Hsi-Chiao.

Tung Chiao is fringed by a reef which extends 1 cable offshore between the point and another point ¼ mile NNW. Three oil tanks stand on Tung Chiao but they are difficult to distinguish from the offing. A **signal station** stands on the S side of the point.

Pilotage is compulsory and vessels can enter only in daylight. Tugs are used as pilot boats. Vessels should anchor near the entrance to embark the pilot.

Three **leading beacons,** the rear and front being lit and each surmounted by a triangle, are situated on the N shore of the harbour 1 mile NW of Tung Chiao; the rear beacon stands on a hill 50 m (165 ft) high. These beacons lead into the harbour through the entrance between Hsi-Chiao and the reef extending W from Tung Chiao, where the sides of the channel are marked by light-buoys.

In 1961, the entrance channel had a least depth of 9·7 m (32 ft) on the leading line.

9.67

Inside Yu-lin Harbour several light-buoys and buoys mark the edge of shoal water; there are also numerous mooring buoys in the harbour. All buoys are liable to be moved, and their charted positions are only approximate.

A concrete wharf, 208 m in length and with a depth of 6·7 m alongside the greater part of it, is situated 4 cables WNW of Hsi-Chiao, fronting the town of Yu-lin. The N end of this wharf shoals to a depth of 0·9 m. To the SE of the wharf there is a small boat camber, two boat slips, and a jetty 45 m long. To the NW of the small port is the town of Yu-lin, consisting of a number of well-constructed buildings, including a hotel. There is a Naval base at Yu-lin.

Close E of the entrance, fronting the town of **An-yu,** there is a concrete wharf, 158 m in length, with a depth of 9·8 m alongside, except at its SW end where depths decrease to 8·8 m. This wharf is primarily used for loading iron ore and is equipped with two conveyors. A **light** is exhibited from the end of this wharf. Two **leading beacons** (white; triangular topmark) stand on the sandbank extending from the S shore ½ mile NE of Tung Chiao. These beacons lead from the entrance to the approach to this wharf.

On the NE side of the harbour is the village of **Hung-sha.** The NE part of the harbour is very shallow and consists almost entirely of saltpans.

9.67a

Directions. The best time to enter Yu-lin is at low water, when the dangers are more prominent. When bound for the iron-ore wharf at An-yu, proceed through the entrance with the three leading beacons on the N side of the harbour, in line bearing 329¾°, until the leading beacons on the S side of the harbour are in line bearing 075°, thence keep on this alignment until abreast the wharf.

If proceeding to Yu-lin wharf, alter course to W when inside the entrance. When berthing alongside, care should be taken to use only the S 200 m of the wharf because of the shoal depth at its N end.

9.68

Facilities. There are three tugs in the port, one of which is a large twin-screw diesel sea-going vessel.

Small repairs can be effected at the Naval base, which has a 700-ton slipway.

Supplies. Fresh water is available. Furnace fuel oil can be obtained in an emergency.

Communications. Yu-lin is connected with other parts of Hainan Dao by good roads. A railway connects Yu-lin and San-ya with Basuo Gang (9.7).

There is a coast radio station at Yu-lin.

SOUTH-EAST AND EAST SIDES OF HAINAN DAO

Charts 3989, 3991

9.69

Chin-mu Chiao (9.64) and **Pai-hu Chiao** (18° 10′ N, 109° 37′ E), 3 miles ENE, are the SW and SE extremities of a bold and steep-to headland at the S end of Hainan

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Dao. The headland rises to an elevation of 379 m (1244 ft), 1¼ miles inland.

9.70

Lang-yeh Wan is entered between Pai-hu Chiao and **Lang-yeh Chiao,** 197 m (647 ft) high, 5½ miles ENE.

Tung Chou, 102 m (336 ft, charted as 361 ft) high, lies 1 mile SW of Lang-yeh Chiao. A rock, 13 m high, lies close off the E side of Tung Chou, and an islet, 10 m high, lies close off the NW side. **Hsi Chou,** 104 m (341 ft) high, lies ¾ mile W of Tung Chou.

9.71

Measured distance. There is a measured distance of 1791·9 m (5879 ft) between a set of three beacons on the S extremity of Tung Chou and a similar set on the S extremity of Hsi Chou; the running course is 090°–270°. Another measured distance of 6037·5 m (19 808 ft) is marked by the above set of beacons on the S extremity of Hsi Chou and another set on Pai-hu Chiao (9.69); the running course is also 090°–270°.

9.72

Yeh-chu Tao, 103 m (338 ft, charted as 308 ft) high, lies in the middle of the N part of Lang-yeh Wan, 1¾ miles NNW of Hsi Chou and 6 cables from the head of the bay. A reef, with a depth of 1·5 m (5 ft) over it, extends 1 cable from the N end of the island. **Tang-p'ai,** 13 m high, and **Hsi-p'ai,** 6 m high, are two rocky islets lying 1 mile and 1½ miles, respectively, W of Yeh-chu Tao. Drying rocks lie up to 2 cables W of these islets.

The W shore of Lang-yeh is reported to be foul but the head of the bay is fronted by a sandy beach and is backed by hills.

Lang-yeh Chiang, ¾ mile wide at its entrance, is situated on the E side of Lang-yeh Wan. **Lang-yeh** village (18° 13′ N, 109° 42′ E), consisting of bamboo huts, stands at the head of Lang-yeh Chiang.

Anchorage may be obtained off Lang-yeh village, ¾ mile NE of the E end of Yeh-chu Tao, in depths of 13 to 15 m (43 to 49 ft), sand and mud. In this position, the NE Monsoon blows strongly over the low neck of land between the hills on Lang-yeh Chiao and those farther inland. S and SW winds cause a considerable swell in the bay.

The channels between the islands in the approach to this anchorage are reported to be safe.

9.73

Chu Wan, a small deep bay, is entered between Lang-yeh Chiao and **Chu-wan Chiao,** 1½ miles NE. **Tieh-lu Chiao** (18° 15′ N, 109° 44′ E), 2¾ miles NNE of Chu-wan Chiao is cliffy and steep-to, and is the NE extremity of a peninsula which attains an elevation of 356 m (1168 ft) 1½ miles inland.

9.74

T'u-chu Wan (Ling-shui Wan), which is exposed to the SW Monsoon, is entered between Tieh-lu Chiao and Ling-shui Chiao, 19 miles ENE. The depths in the bay are mostly over 20 m (65 ft) at a distance of 1 mile offshore. The N and W shores of the bay are low and sandy and are separated by **Chih-ling Chiao,** a small reef-fringed projection off which there are some below-water rocks, situated 8½ miles NNE of Tieh-lu Chiao. The narrow coastal plain is backed by hills and mountains to N and W.

Chart 3991

Tieh-lu Chiang lies close N of Tieh-lu Chiao, and a creek, which discharges into it, has depths of 1·2 m (4 ft) for about 3 miles above the entrance.

Wu-ch'i Chou (Niu-ch'i Chou), 99 m (325 ft, charted as 266 ft) high, lies in the SW part of T'u-chu Wan 3 miles NNE of Tieh-lu Chiao; it is cliffy on its S side and reef-fringed on its N side. A rock, with a depth of 1·2 m (4 ft) over it, lies 8 cables ESE of the NE extremity of the island.

Ling-shui Chiao (18° 23′ N, 110° 03′ E), the E entrance point of T'u-chu Wan, rises to several hummocks with a sandy plain N of them.

A **light** is exhibited from a white column near Ling-shui Chiao; its charted position is approximate.

A point, rising to an elevation of 258 m (847 ft), is situated 4½ miles W of Ling-shui Chiao; a spit over which there are depths of less than 5 m (16 ft) terminates at **Ta Pai,** 1¼ miles SW of the point.

Hsi-ts'un Chiang, a lagoon situated 1½ miles NW of the 258 m (847 ft) hill mentioned above, can be entered by vessels with local knowledge and with a draught of 2·4 m, but coral reefs and sandbanks render its navigation difficult. The entrance channel is marked by beacons. **Hsi-ts'un Shih** village is situated on the W side of the lagoon near the entrance.

Anchorage may be obtained, sheltered from the NE Monsoon, off the entrance to Hsi-ts'un Chiang with the beacons marking the entrance bearing 024° distant 2 miles, in depths of 24 m (13 fm).

Ling-shui Chiao to Malow T'ou

9.75

Between Ling-shui Chiao and Malow T'ou (Ma-liu T'ou) (18° 39′ N, 110° 25′ E) (9.77), 27 miles NE, there is a bay, the shore of which consists of many sandy beaches and high land near the coast, but the bay affords no safe anchorage during the SW Monsoon.

Three prominent peaks are situated 14 miles NE of Ling-shui Chiao and 2 miles inland. **Ang Hi,** the centre peak, is 971 m high and is the highest and most conical of the three. **San-chiao Shan,** 1516 m (4957 ft) high, situated 18 miles farther NW, is of similar appearance. They have been reported as visible at a distance of 90 miles.

9.76

The entrance to **Chiang-men Chiang (Li-an Chiang),** a lagoon which is separated from Hsi-ts'un Chiang (9.74) by a narrow neck of land, is situated 1½ miles N of Ling-shui Chiao. The entrance is fringed with rocks.

Ling-shui Ch'i flows into the sea 7 miles NNE of Ling-shui Chiao. A rock, 9 m high, stands at the entrance. The town of **Ling-shui** stands 3 miles above the entrance.

Shuang-fan Shih, an islet 45 m (149 ft) high and having the appearance of a junk from a distance, lies 6 miles NE of Ling-shui Chiao. **Shui-kou Pai,** a rock over which there is a depth of 7·0 m (23 ft), lies 4½ miles N of Shuang-fan Shih.

Fen-chieh Chou (18° 35′ N, 110° 11′ E), 116 m (382 ft, charted as 356 ft) high, lies 14½ miles NE of Ling-shui Chiao and 1 mile offshore. The islet has two hummocks and rocks extend 1 mile NE from it. The area SW of Fen-chieh Chou has not been surveyed.

Chia-ching Tao, 79 m high, lies 6½ miles NE of Fen-chieh Chou and 1 mile offshore.

Chou-tzu Tao, 153 m (510 ft) high, lies 4 miles WSW of Malow T'ou, the N entrance point of the bay.

Lai-ao Chiang, a lagoon situated 2½ miles N of Malow T'ou, is reached through a channel 4 miles long which is entered 5½ miles W of the point.

Anchorage may be obtained during the NE Monsoon in the bay between Chou-tzu Tao and Malow T'ou in depths from 11 to 16 m (36 to 62 ft). There is also anchorage in the bay NW of Chou-tzu Tao in

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depths from 4 to 5 m (13 to 16 ft). These anchorages are untenable during the SW Monsoon.

9.77

Malow T'ou (Ma-liu T'ou) (18° 39′ N, 110° 25′ E), a cliffy point, rises to an elevation of 140 m (460 ft) near its outer end and forms the S end of a ridge of hills extending 2 miles N from the point. Rocks, which extend ½ mile E, fringe the point.

Chart 3893

9.78

Ta-chou Tao (18° 40′ N, 110° 29′ E) consists of two high ridges joined by a sandy isthmus, and lies 3½ miles E of Malow T'ou. The channel between the island and Malow T'ou has a depth of 14·6 m (48 ft), but a bank with depths of less than 10 m (33 ft) over it extends 1¼ miles W from the N part of Ta-chou Tao. Vessels are recommended not to use this channel without local knowledge.

The S portion of Ta-chou Tao is 290 m (952 ft) high and the N portion 156 m (513 ft) high; both portions are thickly wooded.

Ta-chou Tao bearing 045°, 7 miles
(Original dated 1923)

A **light** is exhibited from a white tower on the summit of the S portion of Ta-chou Tao; its charted position is approximate.

Anchorage, sheltered from the NE Monsoon, may be obtained between the two portions of Ta-chou Tao, 4 cables W of the isthmus, in a depth of 13 m (43 ft), mud and sand. This anchorage is known as the **West Anchorage** and is of importance as a refuge to low-powered vessels proceeding by this route from Singapore to Hong Kong when the NE Monsoon is blowing strongly. It affords a perfect lee and, with the exception of Ch'ing-lan Chiang (9.83), is the last anchorage before a vessel leaves the shelter of the coast.

East Anchorage, which affords shelter during the SW Monsoon in depths of 20 to 22 m (11 to 12 fm), is situated E of the isthmus.

Chart 3991

Malow T'ou to Ch'ing-lan Chiang

9.79

The coast between Malow T'ou and **Ta-hua Chiao** (18° 47′ N, 110° 32′ E), 123 m (405 ft) high, off which there is a below-water rock, 10½ miles NE, consists chiefly of sandy beaches divided by two or three rocky points. There is a **signal station** on Ta-hua Chiao.

Kan-che-ling, an islet 70 m (231 ft) high, lies 2¼ miles WSW of Ta-hua Chiao; a rock, awash, lies ½ cable SE of Kan-che-ling.

Kuan-ts'ai-ling, an islet 86 m (283 ft) high, lies 2 miles NE of Ta-hua Chiao. From a N or S bearing a pillar rock is visible at the E extremity of the islet. A rock, 11 m (37 ft) high, lies on the outer edge of a ledge which extends ¾ mile NNW from Kuan-ts'ai-ling. There is little or no shelter under this islet.

A **light** is exhibited from a white column on the S extremity of Kuan-ts'ai-ling.

9.80

The coast between Ta-hua Chiao and Tung-ku Tsui (19° 38′ N, 111° 02′ E), 59 miles NNE, is low and fringed by a reef.

Two black rocks, the higher of which is 25 m (83 ft) high, lie 6 miles N of Ta-hua Chiao at the entrance to **Hsiao Hai,** a large and shallow lagoon. The town of **Wan-ning,** which is connected with other places in Hainan Dao by the coastal ring road, is situated 3 miles WSW of the W shore of the lagoon.

Between the entrance to Hsiao Hai (18° 53′ N, 110° 31′ E) and the entrance to Po-ao Chiang 16 miles N, ledges of rock, many of which dry, extend 1½ miles offshore in places; a rock, 1 m (4 ft) high, stands off a shoulder of the coast, 10½ miles N of Hsiao Hai.

Wan Ch'uan Ho discharges into **Po-ao Chiang,** a large shallow lagoon, the entrance of which can be identified by a prominent large white pagoda standing close S of it. A prominent hill, 332 m (1090 ft) high, is situated 11 miles W of the entrance. **Pei-ao-shih** town lies close inside the entrance to Po-ao Chiang and is connected by road with the large town of Chia-chi-shih situated 9 miles NW.

A **light** is exhibited from a metal framework structure, painted red and white in bands, on the coast 2 miles SSW of the pagoda.

A bank, with depths of less than 5 m (16 ft) over it and several drying rocks, extends 6½ cables from the entrance to Po-ao Chiang. A rock, which dries 0·6 m (2 ft), lies 3 miles SSE of the entrance.

9.81

Between the entrance to Po-ao Chiang (19° 09′ N, 110° 35′ E) and Tung-ku Tsui, 38½ miles NE, the coast is bordered with coconut groves, and is protected by a barrier reef which lies from 1 to 3 miles offshore, having passages through it opposite the mouths of some streams. The reef consists of coral and is awash at half-tide, with depths of 9 to 11 m (30 to 36 ft) close outside. Junks use the channel inside the barrier reef in smooth water.

This coast should not be approached within a depth of 30 m (16 fm).

9.82

Yen-tun-shih (19° 25′ N, 110° 42′ E), a small port, is situated 17 miles NNE of the entrance to Po-ao Chiang. **Anchorage** may be obtained by vessels with local knowledge during the NE Monsoon, S of Yen-tun-Shih, in a depth of 7 m (23 ft) under the lee of the reef which extends from the coast in the form of an elbow.

Charts 3893, 3991

Ch'ing-lan Chiang

9.83

Ch'ing-lan Chiang, at the mouth of **Wen-ch'ang Chiang,** is entered 13 miles SW of Tung-ku Tsui. The town of Wen-ch'ang is situated 8 miles inland from the mouth of the river. Ch'ing-lan Chiang is the only sheltered port between Yu-lin Chiang (9.64) and Zhanjiang Gang (10.22) and is a good typhoon harbour for such craft as can cross the bar.

Chart 3893

The shore near the entrance is composed of a low sand ridge with coconut groves extending nearly to the waters edge.

A fort stands on the SW side of the E entrance point, 8 cables NW of the light.

The W entrance point lies 1 mile NW of the fort.

Sandbanks, on which the sea breaks, extend ½ mile from the E entrance point and 7½ cables from the W entrance point. A detached sandbank lies between these reefs leaving a channel about 1 cable wide between it and the E entrance point. A shoal, with a least depth of 0·3 m (1 ft) over it, lies 2½ cables E of the W entrance point.

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The channel over the bar is marked by buoys (black on the W side and red on the E side), and two **leading-beacons** (triangles) situated close W of the fort on the E entrance point. This channel had a depth of 2·7 m (9 ft) in 1955, and a vessel with a draught of 3·4 m has entered at half-tide when the banks on either side were visible.

Within the entrance, a pagoda, painted red, stands on the W side of the river 9 cables NNW of the W entrance point, and a pagoda, painted white stands on the E bank of the river, 3½ cables E of the red pagoda. The village of **Ch'ing-lan (Ch'ing-lan-hsia-shih)** is situated on the W bank, 1½ miles from the W entrance point.

Anchorage may be obtained outside the harbour entrance with the fort on the E entrance point bearing 345°, distant 2½ miles, in a depth of 13 m (43 ft), hard sand. Inside, there is a somewhat confined anchorage for small vessels in mid-channel, 3½ cables NW of the above fort, in a depth of 5 m (16 ft).

Ch'ing-lan Chiang should not be entered without local knowledge.

Chart 3991

Ch'ing-lan Chiang to T'ung-ku Tsui

9.84

Between Ching-lan Chiang and T'ung-ku Tsui 13 miles NE, there is a bay which is fringed by reefs and drying rocks. The coast round the bay is low and the N part of the bay forms **T'ang-hung Wan.**

Lorne Rock, a dangerous pinnacle with a depth of 1·8 m (6 ft) over it, lies 11 miles S of T'ung-ku Tsui and 10 miles offshore.

T'ung-ku Tsui bearing 293°, 14 miles
(Original dated 1923)

9.85

T'ung-ku Tsui (19° 38′ N, 111° 02′ E), 132 m (432 ft) high, is the SE extremity of a promontory which rises to an elevation of 341 m (1120 ft) at **T'ung-ku Ling,** 2 miles NW. A group of rocks, one of which is 5 m high, extends ½ mile E from the point.

A light is exhibited from a round tower on T'ung-ku Tsui. In 1979 there was reported to be a signal station near the light-tower.

There is but little shelter under T'ung-ku Tsui in a strong NE Monsoon, at which time the swell is heavy along the whole of this part of the coast; rocks, just above water, lie in the most sheltered portion and in the bay W of the point there are many discoloured patches.

Caution should be exercised when navigating in this vicinity. If standing N at night, T'ung-ku Tsui should be given a wide berth, as there is usually a set towards the coast.

T'ung-ku Tsui to Baohu *Jiao*

9.86

From T'ung-ku Tsui the coast trends NNW for 24 miles to Baohu Jiao, the NE extremity of Hainan Dao. The coast is low and sandy and depths of less than 10 m (33 ft) extend up to 2 miles offshore in places.

Chart 3892

Baohu Jiao (20° 01′ N, 110° 55′ E), which is 9 m high, resembles T'ung-ku Tsui when seen from E. It is sandy and fringed by a reef which extends 1 mile offshore and is fairly steep-to. A **beacon** (white) stands on the N extremity of the point.

A light is exhibited from a white tower on Baohu Jiao: a radiobeacon transmits from the light-tower.

Baohu Shan, a double peaked hill 206 m high, is situated 4½ miles SW of Baohu Jiao.

Owing to the prevailing thick weather during the NE Monsoon, Baohu Jiao is frequently difficult to distinguish by vessels making it from NE. The hills W of the point consist of reddish soil, whilst those off the point are higher and covered with black patches.

Baohu Shan bearing 180°, distant 6 miles
(Original dated 1923)

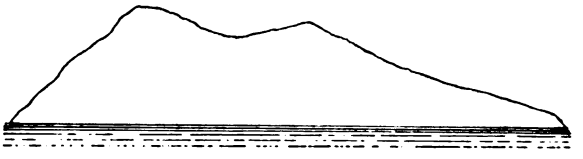
Outlying islands

9.87

Qizhou Liedao consisting of two groups of high and almost inaccessible barren islands, are separated from the NE extremity of Hainan Dao by a channel 12½ miles wide.

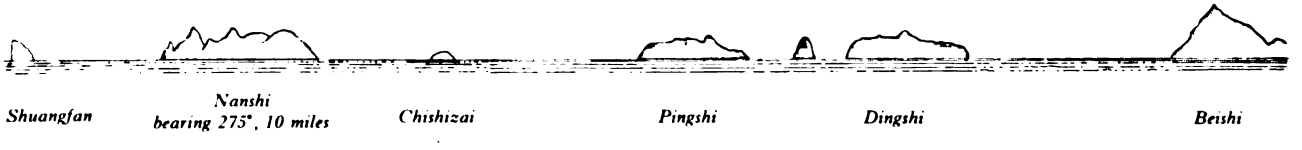
The NE group consists of four islands. **Beishi,** 173 m high, the largest, lies 19 miles E of Baohu Jiao. From the N, the outline of Beishi resembles that of Baohu Shan (9.86).

A light is exhibited from the summit of Beishi.



Beishi bearing 208°, distant 15 miles
(Original dated 1923)

Dingshi (19° 58′ N, 116° 16′ E) 94 m high, lies ½ mile SSW of Beishi, with below-water rocks between them. A conical island of the same elevation lies close SW of



(9.87–9.88) Qizhou Liedao from ESE
(Original dated 1876)

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Dingshi; below-water rocks lie close SW of both these islands. **Pingshi,** the SW island of the group, 93 m high, lies 1¼ miles SW of Beishi.

9.88

Chishizai the N island of the SW group of islands, 48 m high, lies 5 miles SW of Beishi. **Nanshi,** the largest of this group, situated ¾ mile S of Chishizai, has three peaks, the highest of which has an elevation of 129 m; an islet lies close E, and a below-water rock close N of the N end of this island.

Shuangfan, 73 m high, lies 1¼ miles SSE of Nanshi, and has the appearance of two islets when seen from N, E or SW; there is a below-water rock off its N side.

Temporary **anchorage** may be obtained 1 mile SW of Beishi in a depth of 37 m (20 fm), mud, but a swell rolls round the island during the NE Monsoon.

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CHAPTER 10

SOUTH COAST OF CHINA—QIONGZHOU HAIXIA TO TONG KWA

LEIZHOU BANDAO

Chart 3892

10.1

Leizhou Bandao lies between the parallels of 20° 13′ N and 21° 25′ N, and was probably at one time joined to Hainan Dao. It is undeveloped and large portions of its coast are unsurveyed. Its surface is undulating with numerous depressions. Along the coast are barren sand dunes and scattered fishing villages.

The peninsula forms part of the Chinese province of Kwangtung. The population is very mixed.

10.2

Mined area. A dangerous area due to mines exists in the E entrance and approaches to Qiongzhou Haixia. See 1.5, 9.44, and Appendix I.

Shangouhou to Malu-hau

10.3

Between Shangouhou (9.42) and Malu-hau, 9½ miles NNW, the coast consists mainly of sand-hills.

The S entrance to an inshore channel leading to Malu-hau (20° 35′ N, 110° 28′ E) and Zhanjiang Gang (10.22) lies between Luodou Sha (9.45), 6 miles SE of Shangouhou, and the SE coast of Leizhou Bandao. This channel can be used by vessels drawing about 3·7 m with local knowledge.

The channel passes close E of **Hei Chiao,** a group of rocks 4 miles NNE of Shangouhou, which dry and are always visible, thence for 8½ miles it leads between sand-flats, which dry in patches or have depths of only 0·6 to 0·9 m over them, thence it leads over a flat, with a depth of 2·7 m, towards the SE entrance to Shawaihang Shuidao (10.8a).

A branch of the channel leads to the small port of **Malu-hau,** situated on the S side of the mouth of **Malu-hau Chiang** 9½ miles NNW of Shangouhou. There is a depth of 1·2 m over the bar in the river mouth.

There are extensive banks E of Chiang Malu-hau which have not been thoroughly surveyed.

10.4

Tidal streams in the inshore passage usually set along the direction of the channel, setting N on the rising tide and S on the falling tide, but off the mouth of Malu-hau Chiang they set across the channel on both sides. Where the streams from the inshore passage meet those from Qiongzhou Haixia, there are sometimes eddies which have the appearance of breakers.

The maximum rate of the tidal streams in the inshore passage is reported to be 2½ knots. See also 9.18, 9.43 and 10.14.

Malu-hau to Zhanjiang Gang

10.5

Between Malu-hau and the entrance to Huang-po Chiang (10.48), 41 miles NNE, there is a bay, a considerable portion of which is occupied by **Donghai Dao,** a large island lying close off its NW shore. Naozhou Dao (10.15) lies close SE of Donghai Dao. **Leizhou Wan,** the S part of the bay, is filled with shallow banks intersected by narrow channels. Zhanjiang Gang (10.22), an important harbour, lies N of Donghai Dao.

10.6

Between Malu-hau and the entrance to **Leizhou Chiang** (20° 51′ N, 110° 11′ E), 22½ miles NW, the coast is fringed by banks with depths of less than 5 m over them.

Yangmie Sha, a drying bank at the W end of which there is an islet, lies 11 miles E of the entrance to Leizhou Chiang.

10.7

Shili Ling, 225 m high, is situated 8 miles SSE of the entrance to Leizhou Chiang. **Shimao Ling,** 258 m high, is situated 8 miles SSW of Shili Ling.

10.8

Haikang (20° 55′ N, 110° 05′ E) is the principal town of Leizhou Bandao: it lies close to the N bank of Leizhou Chiang.

10.8a

Shawaihang Shuidao (20° 45′ N, 110° 40′ E), a channel entered 8 miles SE of the SE extremity of Naozhou Dao, leads WNW into Leizhou Wan. The channel passes N of **Myuli Sha,** on which the sea breaks, and S of foul ground which extends up to 4 miles between E and S from the SE extremity of Naozhou Dao. **Chushui Shi** (20° 50′ N, 110° 39′ E) (chart 3349) is the SE danger on the foul ground. **Bahe Nanshi,** which dries 3·7 m and is nearly always visible, and **Bahe Shi** lie 1¼ miles and 1¾ miles W of Chushui Shi.

A causeway (10.25) joining Donghai Dao to the mainland NW prevents access to Zhanjiang Gang from Leizhou Wan.

ZHANJIANG GANG AND APPROACHES

Charts 3349, 3892

10.9

The territory of Zhanjiang consists of a narrow strip of land enclosed by the extensive estuary of Maxie He Chiang (10.43) and includes Donghai Dao and Naozhou Dao on the S side of Zhanjiang Gang and Nansan Dao on the N side.

The country is volcanic in origin and undulating. The coasts are flat and muddy except for the E coasts of Donghai Dao and Nansan Dao, where there are stretches of sandy beach, and the sides of Naozhou Dao which are rocky.

10.10

Numerous junks many of which do not show lights and do no obey the *International Regulations for Preventing Collisions at Sea* may be met in the approaches to Zhanjiang Gang.

Approaches to Zhanjiang Gang

10.11

Zhanjiang Gang can be approached by the main channel passing NE of Naozhou Dao (10.15) or by Nao-chou Hsi-pei Hang-men (10.13), a minor channel passing W of the same island.

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10.12

Tung-pei Hang-men connects Shawaihang Shuidao (10.8a) with the main approach channel to Zhanjiang Gang passing through the foul ground which extends SE from Naozhou Dao. The shoals on each side of the channel are steep-to but it should only be used at low water when **Fuching Chiao,** a rock which dries 1·5 m, lying 1 mile S of Cumliang Jiao, the SE extremity of Naozhou Dao, is visible. The channel passes close NW of Fuching Chiao, thence ½ mile W of **Haidan Jiao** (20° 53′ N, 110° 39′ E), a rock which dries 1·2 m, situated 2½ miles NE of Fuching Jiao.

10.13

Nao-chou Hsi-pei Hang-men, a channel connecting Shawaihang Shuidao with the main approach channel to Zhanjiang Gang, leads along the W and NW sides of Naozhou Dao. It is entered between the shoal area extending SSE from the SE extremity of Donghai Dao and the W extremity of Naozhou Dao: thence it passes between **Beigangmen Sha,** drying 0·6 m, which lies close off the NW side of Naozhou Dao, and another bank 4 cables farther WNW.

10.14

Tidal streams in Nao-chou Hsi-pei Hang-men attain a rate of 2½ knots, changing 1 hour after high and low water. The set is to the S on the rising tide and N on the falling tide. The flood stream, setting NW in Shawaihang Shuidao meets the above mentioned flood stream setting S off the W of Naozhou Doa; they separate at the same spot.

10.15

The main approach channel to Zhanjiang Gang leads from SE passing NE of Naozhou Dao and N of Donghai Dao.

Naozhou Dao SE Light-buoy (port hand, whistle) is moored 10 miles SE of Naozhou Dao Light.

Four fish havens, over which there are least depths of 10 m, lie within 8 cables of a position 7 miles SE of Naozhou Dao Light.

It is reported that there is a least depth of 8·4 m on the bar and that in favourable conditions vessels of 10·1 m draught can enter harbour. Winds from NE produce a swell on the bar and adequate under-keel clearance must be allowed. See Pilotage (10.20).

It is reported that large tankers are lightened in the outer approaches.

Naozhou Dao lying W of the approach channel to Zhanjiang Gang appears from the offing as a flattened cone, the summit of which, 83 m high, is bare. The N side of the island is composed of sand-hills, 12 to 15 m high, from which reefs extend for a distance of ½ mile offshore.

Naozhou Dao Lighthouse is a grey tower, 19 m in height, situated on the summit of the island and is very prominent but is sometimes obscured by clouds; it is difficult to distinguish when approaching from N. A radiobeacon transmits from the lighthouse.

Doulong Cun Leading Light-beacons are situated near the NE point of Naozhou Dao. A common front light is exhibited from a white square tower: in line bearing 270° with a rear light exhibited from a white tower with a black band it leads along the outer section of the approach channel known as Doulongcun Donghangdao; and in line with a rear light exhibited from a white tower with black stripes it leads along the section known as Doulongcun Beihangdao.

It is reported that the rear light-beacon of the 270° alignment kept well open NE of the rear light-beacon of the 167° alignment provides a good clearing line for the N end of the banks which lie SE of Naozhou Dao.

Longshui Ling bearing 274°, distant 15 miles
(Original dated 1933)

10.16

Longshui Ling, 109 m high, is situated on the E side of Donghai Dao, 9 miles NW of the summit of Naozhou Dao. Longshui Ling with its dark summit fronted by light sand is unmistakable. It sometimes appears to rise from the clouds.

Leading lights are exhibited from white pyramidal towers SE of Longshui Ling: in line bearing 303¾° they lead along the section of the approach channel known as Longshuiling Hangdao. These light-towers are difficult to distinguish.

Hou Ling, 30 m high, is a hill situated 2¼ miles NNE of Longshui Ling. Two towers, one in ruins, stand near the N shore of Donghai Dao 1½ miles NW of Hou Ling.

Chart 3349

10.17

On the S end of **Nansan Dao** which forms the N side of the entrance channel to Zhanjiang Gang there are some wooded hills, prolonged N by high sand-dunes. **Ching Ling,** which is only wooded on its S and W sides, is the most prominent of these hills, and lies 3 miles NNE of Hung Shan and ¾ mile inland. **Lin Shan** which is saddle shaped and covered with trees, is situated near the SW extremity of Nansan Dao, 1½ miles W of Ching Ling.

Nansan Dao Leading Lights are exhibited from white towers with black bands, the rear on the summit of Ching Ling: in line bearing 325° they lead along the section of the approach channel known as Nansandao Nanhangdao. Trees flanked the leading line near the front light-beacon in 1965, and the light-beacons could not be discerned except from close to the leading line, and were consequently difficult to pick up when approaching from W.

10.18

The coastal bank, with depths of less than 5 m over it, extends 3½ miles E from Donghai Dao abreast Longshui Ling. The N part of this bank dries 1·8 m and extends 1 mile ESE from the NE extremity of Donghai Dao. Two patches, one of which is awash at low water and the other which dries 0·6 m, lie ½ mile farther SE.

A bank, with depths of less than 5 m over it, extends 6¼ miles SE from Nansan Dao. Several drying patches and some with depths of less than 2 m over them are found on this bank. During the NE Monsoon this bank is marked by breakers.

10.19

The bar lies between positions 2½ miles N of Naozhou Dao and 3½ miles SE of Nansan Dao. The channel over the bar, in the Doulongcun Beihangdao section of the approach channel, is marked by Nos 2 and 4 Light-buoys on the E side and Nos 3, 5 and 6 Light-buoys on the W side. No 6 Light-buoy marks the turn into the Nansandao Nanhangdao section. The channel is 200 m wide and the least depth is 9·0 m.

When dredging is being carried out, red lights are exhibited at night from dredging beacons 100 m each side of Doulong Cun front and rear 167° leading light-beacons, at right angles to the direction of the channel: each pair of red lights in line indicates the outer limit of the channel.

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A 6·5 m obstruction lies close to the E side of the channel, 1¾ cables NNW of No 2 Light-buoy.

A dangerous wreck lies 3½ miles SSE of Nansan Dao Front Leading Light.

No 7 Light-buoy, moored on the E side of the channel 2 miles SE of Nansan Dao Front Light-beacon, marks the turn from the Nansandao Nanhangdao section of the approach channel into the entrance channel (10.22).

10.20

Pilotage is compulsory and is undertaken by day and night. Vessels not familiar with the port and its approaches and those drawing more than 9·1 m embark the pilot in **No 1 Pilot Anchorage,** situated at the junction of the Longshuiling Hangdao and Doulongcun Beihangdao sections, 1¾ miles NNW of Doulong Cun Light-beacons. The bottom is soft mud, good holding ground, but the anchorage is exposed to the NE Monsoon. Other vessels embark the pilot in No 2 Pilot Anchorage (10.29). Pilots normally board at No 2 Anchorage. The pilot launch is white.

The harbour is open to foreign shipping.

Vessels with a draught of 10·3 m or more only enter the port at HW.

The ETA stating the position in which the pilot should embark must be signalled 24 hours in advance to the Harbour Master, Zhanjiang, who will despatch the pilot in a tug which will assist on the inbound passage. The pilot is usually accompanied by the ship's agent, harbour and police authorities and interpreters.

10.21

Directions for approach to Zhanjiang Gang. Approach Naozhou Dao from E on the alignment of Doulong Cun Leading Light-beacons bearing 270°. After leaving Zhanjiang Gang No 1 Light-buoy (20° 56′·0 N, 110° 40′·3 E) to S, alter course to 303¾° with Longshui Ling Light-beacons ahead, guarding against a westerly set towards Naozhou Dao: if the light-beacons cannot be distinguished, steer 299°, with the summit of Longshui Ling ahead on that bearing. If using No 1 Pilot Anchorage, it is better to use the northern part in the NE Monsoon, and the western part with a flood tide.

Cross the bar between the light-buoys with the 167° alignment of Doulong Cun Leading Lights astern until No 6 Light-buoy is reached when course should be altered to 325° with the Nansan Dao Leading Lights in line ahead. In the NE Monsoon, especially with a flood tide there is a strong W set across the bar.

When near No 7 Light-buoy and Hou Ling (10.16) bears 259°, or at night when Longshui Ling Front Light changes from red to white, alter course to 284½° and proceed along the entrance channel, directions for which are continued in 10.40.

Zhanjiang Gang

10.22

The entrance channel lies between Donghai Dao and Nansan Dao and is at least 1 mile wide between the narrow drying banks fringing the shores on each side. Within the bay the channel as far as the wharves at Zhanjiang is at least 3 cables wide and the least depth is 8·8 m.

The shores of the bay are low and sandy, fringed nearly everywhere by banks of soft mud which dry. There are some red cliffs and clumps of trees sheltering villages which can be used as landmarks.

10.23

Zhanjiang Gang extends 2½ miles N from a line joining **Sha Wei** (21° 09′·4 N, 110° 24′·9 E), the W extremity of Techeng Dao, and **Shitou Jiao,** 1 mile W, as far as the mouth of Maxie He Chiang (10.43). The port of Zhanjiang is situated on the W side of the bay at the river mouth.

North side of Zhanjiang Gang

10.24

The N side of Zhanjiang Gang is low and swampy and intersected by several waterways navigable only by junks. **Techeng Dao** is a large island in the N part of the bay from which a drying bank extends 1¼ miles SE. There is a beacon on Sha Wei, the W extremity of the island. There are red cliffs on the mainland shore about 2 miles E of the SE extremity of Techeng Dao. Drying banks occupy much of the NE part of the bay.

South side of Zhanjiang Gang

10.25

The S side of Zhanjiang Gang is formed by the N coast of Donghai Dao: this coast is hilly between 2 miles and 5 miles W of Hou Ling (10.16). Drying banks extend up to 2 miles off the coast. **Dongtoushan Dao** is an island which lies about 1 mile off the N extremity of Donghai Dao, 8 miles WNW of Hou Ling. There is a white beacon at the E end of the island.

A causeway joins Donghai Dao to the mainland 4 miles W of the W extremity of Donghai Dao.

West side of Zhanjiang Gang

10.26

The W side of Zhanjiang Gang from the causeway to Shitou Jiao (10.23) is fringed by a drying sandbank extending up to 1½ miles from the shore.

Leading Light-beacons

10.27

Leading lights are exhibited from white towers standing near the SW extremity of Nansan Dao: in line bearing 076¾° astern they lead along the section of the channel known as Nansandao Xihangdao.

Donghai Dao Leading Lights are exhibited from a position on the coast of Donghai Dao 3 miles W of Hou Ling (10.16). Shitou Cun Leading Lights are exhibited from a village close W of Shitou Jiao (10.23). The former lights in line bearing 142¼° and the latter in line bearing 322¼° leading along the section of the channel known as Dongshi Hangdao.

Dongtoushan Dao Leading Lights are exhibited from a position near the N point of Dongtoushan Dao: in line bearing 177¾° astern they lead along the section known as Dongtoushandao Hangdao.

Maxie Leading Lights are exhibited from the town of **Maxie** on the E side of the entrance to Maxie He Chiang: in line bearing 023° they lead along the section known as Maxie Hangdao.

Fairway through Zhanjiang Gang

10.28

A rock with a least depth of 6·2 m over it lies close to the N side of the fairway, 2¼ miles WNW of Hou Ling (10.16). No 8 Light-buoy is moored on the SE side of this rock.

On the S side of the fairway a rock with a least depth of 1·5 m over it lies 3 miles WNW of Hou Ling and rocky patches extend 2¼ miles NW from this rock. The channel through a gap between rocky patches is marked by No 9 Light-buoy on the S side and No 10 Light-buoy on the N side.

The edge of the coastal bank at the turning point in the channel is marked by No 11 Light-buoy moored 2¾ miles ESE of the E extremity of Dongtoushan Dao.

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A shoal with a least depth of 3·4 m over it lies 2 miles ESE of the E extremity of Dongtoushan Dao. The channel between this shoal and a rocky patch ¼ mile NE is marked by No 12 Light-buoy on the NE side and No 13 Light-buoy on the SW side.

No 15 Light-buoy is moored on the SW side of a 3·2 m shoal, 2 miles SE of Shitou Cun Front Light, and Nos 16 and 18 Light-buoys mark the edge of shoal water on the E side of the channel 1¼ miles ESE and 1¼ miles ENE, respectively, of the same light.

No 21 Light-buoy is moored close SE of **Aluoti Jiao,** a 0·7 m rock situated 1 mile SSW of Maxie Front Light.

There are below-water fishing stakes on both sides of the fairway.

There are mooring buoys each side of Dongshi Hangdao between 1¾ miles and 6 miles SE of Shitou Jiao.

Anchorages

10.29

Nos 17, 18 and 19 anchor berths lie on the N side of the entrance channel off the SW extremity of Nansan Dao.

No 2 Pilot Anchorage which is also the **Quarantine Anchorage,** with good holding ground, lies off the N side of the fairway at the junction of the entrance channel and the section of channel known as Nansandao Xihangdao. The anchorage can accommodate vessels with a draught of 10·3 m. A yellow light-buoy marks the SE extremity of shoal water NE of the anchorage.

There are tanker anchorages 9 cables S of Shai Wei (21° 09′·5 N, 110° 24′·9 E), the W extremity of Techeng Dao (10.24), and 1½ miles NNE of the same point.

Zhanjiang

10.30

The port of Zhanjiang lies on the W side of the bay N of Shitou Jiao (21° 09′·5 N, 110° 23′·7 E). It is well protected against typhoons but during the NE Monsoon conditions at the port can be difficult. The inability of a pilot to reach a vessel owing to bad weather and strong onshore winds may cause considerable delays.

The port is a base for offshore oil and deep sea fishing.

Imports are grain, fertilizers, machinery and crude oil: exports are coal, phosphate ore and barytes.

The largest vessel which can be handled is 50 000 dwt drawing 10·5 m.

10.31

A T-headed oil jetty extends to the edge of the deep water channel from Shitou Jiao: an extension of the T-head N provides additional berths. Tankers up to 220 m long drawing 11·6 m and of 50 000 dwt can be accommodated.

Lights are exhibited from each end of the T-head. No 17 Light-buoy marks the edge of shoal water S of the jetty.

About 1 mile N of the oil jetty there is a broad pier with 1352 m of berthing space. Scrap metal is loaded on the E side.

In 1986 construction was in progress between the oil jetty and the pier.

10.32

The bulk terminal, a wharf with 6 berths situated N of the pier is approached by a channel with a least depth of 8·8 m. Leading lights are exhibited from the N end of the wharf: in line bearing 345° they lead along the approach channel, which is marked on the E side by Nos 19 and 20 Light-buoys, into a turning basin off the wharf.

In 1983 a coal wharf was under construction N of the bulk terminal.

10.33 to **10.38**

Spare.

10.39

Tidal streams in the entrance channel are strong, sometimes reaching 4 knots; their direction follows that of the channel.

In Zhanjiang Gang the tidal streams follow the direction of the channel except in the vicinity of the N end of Dongtoushan Dao where the flow is towards and away from the channel NW of the island.

To the N of Aluoti Jiao (10.28) the in-going stream is weak and commences 2½ hours after low water at Naozhou Dao. The out-going stream commences 1¼ hours after high water at Naozhou Dao and attains a rate of 1½ knots.

Directions for Zhanjiang Gang

10.40

Directions for the approach to Zhanjiang Gang are given in 10.21.

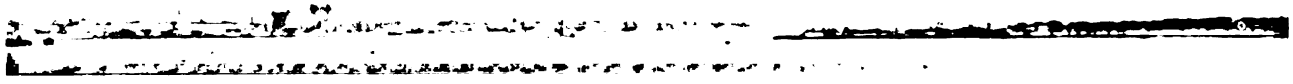
After passing No 7 Light-buoy (10.19) steer 284½° to follow the charted recommended track through the entrance channel, altering course to bring the leading lights on Nansan Dao (10.27) into line astern bearing 076¾°. Continue on this alignment passing S of No 8 Light-buoy and between Nos 9 and 10 Light-buoys: when near No 11 Light-buoy alter course to 322¼° with Shitou Cun Leading Lights in line ahead and Donghai Dao Leading Lights in line astern. Pass between Nos 12 and 13 Light-buoys and NE of No 14 Light-buoy: after passing SW of No 15 Light-buoy alter course to 357¾° bringing Dongtoushan Dao Leading Lights into line astern. Thence proceed to the port being guided by the charted leading lines and keeping to the W of Nos 16 and 18 Light-buoys and E of No 17 Light-buoy.

Berths

10.41

There are 19 anchor or mooring buoy berths in depths from 13 m to 34 m, most of them with good holding ground, mud and sand. Cargo is discharged into lighters at these berths.

See 10.29 for Nos 17, 18 and 19 anchor berths and for the quarantine anchorage.



Oil Pier *Shai Wei* *Techeng Dao*

(10.30) Zhanjiang from SSE
(Original dated 1984)

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Facilities

10.42

Tugs are available to assist in berthing: they are fitted with RT. There are cranes on the wharves and a floating crane.

Deratting can be carried out: see 1.92.

Minor repairs can be carried out. There is a hospital.

Supplies. Fresh provisions are available.

Fresh water is laid on to the wharves.

Fuel can be supplied by barge.

Communications. There is a signal station at the N end of the bulk terminal (10.32). Typhoon warning signals are displayed.

There are a coast radio station and a port radio station.

There is frequent communication by sea with Hong Kong and with Haiphong and other ports in the Gulf of Tonkin.

There is a civil airport.

Maxie He Chiang

10.43

Maxie He Chiang flows into Zhanjiang Gang between Zhanjiang on the W bank and Maxie on the E bank.

Chikan, a commercial centre, is situated at the entrance to a creek on the W side of the river 5½ miles NW of Zhanjiang.

Considerable development has taken place on **Taocien Island** (21° 18′ N, 110° 24′ E) where a steelworks has been built. On the SE side of the island there is a quay 2000 m long: there are five berths with depths of 9·1 m alongside. Cranes with 15 tons capacity are available. There is a bulk loading berth at the NE end of the quay.

Maxie He Chiang is navigable by small craft with local knowledge for about 6½ miles above Chikan.

10.44 to **10.47**

Spare.

ZHANJIANG GANG TO HAILINGSHAN GANG

Chart 3892

10.48

Between Zhanjiang Gang (10.15) and the entrance to **Huangpo Chiang** (21° 15′ N, 110° 39′ E), 11 miles NNE. The coast is low and sandy. A bank which dries extends 2½ miles SE from the entrance to Huangpo Chiang: **Beiqi Yan,** a rock with a depth of 2·4 m over it, lies 3 miles E of the river mouth. Breakers extend 3 miles to seaward from the river mouth.

Huangpo Chiang is navigable only by shallow draught vessels.

10.49

Between Huangpo Chiang and **Ankang Shan** (21° 26′ N, 110° 59′ E), a bold cliff 168 m high 22 miles ENE, the coast is low.

Liandui Jiao is a rock lying 1½ miles S of Ankang Shan and rocks exist up to 2 miles offshore between Ankang Shan and a point 10 miles W.

Shuitung Chiang, which is narrow and dangerous, is entered E of the extremity of a peninsula which extends 5 miles ENE from Ankang Shan. There are two remarkable conical hills, 9 m and 15 m high, on the peninsula.

The bar is 2 to 3 miles SE of the river entrance. The banks in the vicinity of the bar are liable to change in strong winds and the sea breaks heavily on them.

Chimshan, a white hummock 20 m high, is situated on the coast between the entrance to Shuitung Chiang and a point 8 miles E. A shallow bank, which dries at its E end, extends 2 to 3 miles from this part of the coast. **Niumu Shih** and **Huawen Shih,** both above-water rocks, lie near the edge of this bank.

10.50

Currents and tidal streams. During the NE Monsoon there is stated to be an almost constant W current along this coast which attains a rate of ½ to 1½ knots.

Between Leizhou Bandao and Hailingshan Dao (10.57) the tidal stream appears to attain a rate of ¾ knot, setting W on the rising tide and E on the falling tide. The monsoon current, which must be added to the above to give the total flow, averages 1 knot E from June to August, and from ¾ to 1 knot W from November to March.

Charts 1555, 3892

Diancheng Chiang

10.51

Diancheng Chiang is entered between Niumu Shih and **Xiao Jiao** (21° 25′ N, 111° 15′ E), the SW extremity of a peninsula which is joined to the mainland by an isthmus of sand. The SE side of the peninsula is hilly and has a rounded appearance from E.

Dafangji Dao, an island 117 m high, lies 4 miles WSW of Xiao Jiao. A light is exhibited from a white framework tower, 6 m in height, on the island.

Hsiaofangchi, an islet 31 m high, lies 2 miles NE of Dafangji Dao. **Popi Shih,** a large white rock, lies 1¾ miles E of Hsiaofangchi and there is a below-water reef between them.

Sieho reef extends 1 mile SSE from the shore, 1¼ miles E of Xiao Jiao.

A narrow channel, passing close W of the point 1¾ miles N of Xiao Jiao, leads N between drying banks to the mouth of Diancheng Chiang.

Diancheng (21° 31′ N, 111° 17′ E) is situated at the head of a shallow bay which lies between the river entrance and the peninsula of which Xiao Jiao is the SW extremity. The town can be approached by small craft through unmarked channels between mud-flats.

Anchorage. Anchorage sheltered from SW winds can be obtained close NW of a line joining Dafangji Dao and Hsiaofangchi in a depth of 11 m. In this position Hsiaofangchi and Xiao Jiao break the force of all NE winds but there is a considerable swell during the NE Monsoon.

Diancheng Chiang to Hailingshan Gang

10.52

From Xiao Jiao (21° 25′ N, 111° 15′ E) the coast trends NE for 11 miles to the W entrance point of a group of inlets, divided in the middle by a peninsula extending S. A drying bank extends 2 miles S from the peninsula and there is a 15 m high rock at the outer end of the bank.

Dazhu Zhou, 83 m high, lies 7 miles E of Xiao Jiao and 2¾ miles offshore. **Xiaozhu Zhou,** an islet, lies ½ mile NNE of Dazhu Zhou and foul ground extends a further 1¼ mile NNE.

Anchorage may be obtained by vessels with local knowledge, sheltered from E winds, ½ mile or more W of Dazhu Zhou in depths of 7 m to 11 m, fine sand.

10.53

Qing Zhou (21° 29′ N, 111° 28′ E), 110 m high and coverd with grass and bushes, lies 6 miles ENE of Dazhu Zhou and 1¼ miles offshore. Foul ground extends 1½ miles SSE and SW from Qing Zhou and a rock, 6 m

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high, stands ½ mile NNE. Above and below-water rocks lie between the 6 m rock and the shore.

10.54

Shuangyu Zui (21° 31′ N, 111° 39′ E), 10 miles ENE of Qing Zhou, is low and sandy and forms the entrance point to an inlet which extends NW for 5 miles. **Dashu Dao,** an islet, lies close SW of Shuangyu Zui and foul ground on which there are some islets extends a further 1 mile SW.

10.55

Between Shuangyu Zui and **Santou Zui,** a low sandy point 10 miles NE, there is a bay backed a short distance inland by **Longgao Shan,** 867 m high. **Shuangshan Dao** is the larger of two islets, lying in the SW part of the bay, on a rocky spit extending 4 miles ENE from Shuangyu Zui.

Chart 1555

Hailingshan Gang

10.56

Hailingshan Gang is entered close W of the SW extremity of Hailingshan Dao (21° 34′ N, 111° 48′ E), situated 9½ miles ENE of Shuangyu Zui. The harbour is open to the SW but it affords good shelter to one or two vessels of moderate draught during the NE Monsoon and to small vessels at all times. Foreign vessels are permitted to use the harbour for shelter.

Mawei Zhou, an islet 35 m high, and **Tazuishan,** 23 m high, lie close W of the SW extremity of Hailingshan Dao and are connected to it by a drying bank. A light is occasionally exhibited from a white triangular framework structure on Mawei Zhou.

Mawei Shan rises to a height of 146 m near the SW extremity of Hailingshan Dao. There is a storm signal station on **Wangliao Shan,** 117 m high, 8 cables E of Mawei Shan.

Hudie Zhou (21° 34′·8 N, 111° 49′·1 E) is an island, situated close off the W coast of Hailingshan Dao, 1¼ miles from its SW extremity.

Zhapo Gang is a bay entered between Hudie Zhou and **Paotai Zui,** ½ mile N. The town of Zhapo is situated at the head of the bay.

Except for the deep channel which extends N through the central part, the NE side of the harbour is mostly shallow and is encumbered in places with drying rocks and islets which lie on an extensive bank with depths of less than 5 m over it.

Breakers have been reported on the W side of the channel S of Santou Zui (10.55).

Anchorages. Anchorage can be obtained in a depth of 11 m with the SW extremity of Hudie Zhou bearing 073° 4 cables or on the E side of the deep-water channel farther N. Shallow draught vessels can anchor in Zhapo Gang within Hudie Zhou where there are depths of about 3 m.

Directions. Vessels entering the harbour should follow the deep-water channel passing a little more than 1 cable off the W side of Tazuishan. They should not attempt to enter without local knowledge.

Supplies. Fish and small quantities of vegetables can be obtained at Zhapo.

HAILINGSHAN GANG TO GUANGHAI WAN

Hailingshan Dao

10.57

Tsaowang Shan (21° 37′ N, 111° 55′ E), the summit of **Hailingshan Dao** situated near the centre of the island, is 388 m high.

Dajiao Zui, a headland on the S side of the island, lies nearly 2½ miles E of the SW extremity. **Dajiao Ding,** 309 m high, is ¾ mile N of Dajiao Zui.

Three above-water rocks lie on a reef which extends 1 mile offshore from a position 4 miles ENE of Dajiao Zui. Another reef, nearly covered at high water, lies ¾ mile S of the SE extremity of Hailingshan Dao. **Guishan,** an islet 38 m high, lies close E of the same extremity.

On the E side of Hailingshan Dao there is a patch of red sand visible from SE.

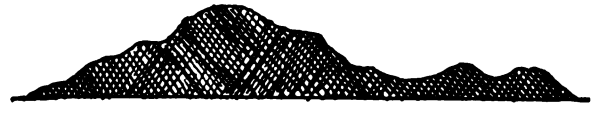
Hongyu Pai, a rock with a depth of 16 m over it, lies 10 miles SSE of Dajiao Zui.

Off-lying islands

10.58

Huangchengshan (21° 33′ N, 112° 06′ E), an islet 143 m high, is situated 7 cables SE of the SE extremity of Hailingshan Dao. A light is exhibited from a white concrete tower on the islet.

Nanpeng Dao, 208 m high at its W end and steep-to, lies 4 miles E of Huangchengshan.



Nanpeng Dao bearing 045°, distant 7 miles
(Original dated 1923)

Erhuo, 120 m high, with below-water rocks close off its W and SE sides, lies 3½ miles NNE of Huangchengshan.

Dahuo, 103 m high, having the appearance of a saddle when viewed from SW, lies 2½ miles NNW of Erhuo. A rock awash, on which the sea sometimes breaks, lies 1 mile SW of Dahuo.

Xiaoxifan Shi and **Daxifan Shi** are two rocks situated 1¾ miles S and 2 miles SSW of Huangchengshan. The latter rock is 14 m high.

Dongdafan Shi (21° 28′ N, 112° 21′ E), a barren rock 41 m high appearing like a junk with a single sail, stands 11 miles ESE of Nanpeng Dao. Another rock is situated close NW.

10.59

Currents. During the NE Monsoon, and also in August and September, when E winds frequently prevail, the current sometimes sets W at the rate of 3 knots off Dongdafan Shi, abating only to 1½ knots when the tidal stream, under ordinary circumstances, would be setting E. Frequently in the SW Monsoon, if the wind shifts to an E direction, a W set is experienced.

Hailingshan Dao to Guanghai Wan

10.60

The large bay entered between the E extremity of Hailingshan Dao and **Daao Zui** (21° 42′ N, 112° 15′ E), 13 miles ENE, is shallow and unsurveyed.

10.61

The coast between Daao Zui and the W entrance point of Zhenhai Wan, 9½ miles ENE, is high and rugged. **Kuitian Shan,** 6½ miles ENE of Daao Zui and 3 miles inland, is 514 m high and **Ziluo Shan,** 4¼ miles N, is 792 m high.

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Zhenhai Wan is a wide and shallow river estuary between the point 9½ miles ENE of Daao Zui and **Qingshan Zui,** 9 miles farther ENE. The latter point rises to a height of 360 m about 1 mile inland.

Between Qingshan Zui and the SW extremity of **Tong Kwa,** 20 miles ENE, the coast is mountainous and irregular. **Guanghai Wan,** a bay with depths of less than 5 m, lies between these points. **Guanghai,** at the head of the bay, is an important fishing centre.

Off-lying islands

10.62

Mang Zhou (21° 40′ N, 112° 27′ E), an island 289 m high covered with vegetation, lies near the edge of the coastal bank 11 miles ESE of Daao Zui. There is a village which is only visible from SE near the summit. **Huangcheng,** a rock 20 m high, stands ½ mile off the S side of the island and another rock is situated 1¼ miles off the E side.

Anchorage may be obtained by small vessels with local knowledge, during E winds, off the W side of Mang Zhou in a depth of 5 m; there is a beach on the W side of the island near its S end.

10.63

Xiachuan Dao, a large island, is situated 5 miles E of Mang Zhou. There is a 527 m high hill in the NE part of the island and **Guanyin Shan** in the SW part is 433 m high. **Litou Zui** (21° 36′ N, 112° 31′ E), the SW extremity is a prominent bluff.

Wangfu Zhou, 177 m high, lies off the S side of Xiachuan Dao, 4 miles E of Litou Zui. Small islets lie off the W and N sides of Wangfu Zhou.

10.64

Anchorages. Anchorage sheltered from E winds can be obtained 1 mile NW of Litou Zui in depths of 9 m to 11 m, soft mud.

The bay NW of Wangfu Zhou provides safe anchorage for small vessels either close W of Wangfu Zhou in a depth of 8 m, mud, or in the W part of the bay, also in a depth of 8 m, mud.

10.65

Ping Zhou (21° 36′ N, 112° 39′ E), 29 m high, is the largest of a group of islands lying off the SE side of Xiachuan Dao. Smaller islands lie up to 1 mile SW and 3 miles NNE of Ping Zhou: the islands ½ mile and 2 miles NNE are 93 m and 53 m high, respectively.

10.66

Shangchuan Dao, about 5 miles E of Xiachuan Dao, is a large, mountainous and irregularly shaped island. **Cheqi Ding** near the NE extremity is 493 m high, **Lizaitu** near the W extremity is 443 m high, and **Dagang Ding** in the S part of the island is 324 m high.

10.67

Shangchuan Jiao (21° 34′ N, 112° 46′ E) is the S point of Shangchuan Dao. A conspicuous signal station, at which there are many buildings, stands on a 272 m hill ½ mile N of Shangchuan Jiao.

Between Shangchuan Jiao and **Shati Jiao,** 3 miles NW, there are two small bays, the S is **Tatien Wan** and the N **Shati Wan.**

Yang Yen, a rock, lies 1½ cables from the S entrance point of Tatien Wan.

A white beacon stands on **Meitou Zhou** the N entrance point of Shati Wan, close S of Shati Jiao. The sides of Shati Wan, backed by steep hills, are rocky except for one or two sandy beaches. The head of the bay is divided into two parts by a line of rocks, on the seaward end of which stands a red and white beacon. **Shati-hsu,** a town, occupies the head of the SE part. A breakwater and a pier extend from the shore on the E side of the bay, S of the town.

Anchorage can be obtained in a depth of 5 m, SE of the red and white beacon, good holding ground in coarse sand.

Qitou Wan, a large bay, is entered between Shati Jiao and **Pai Yen** (21° 41′ N, 112° 42′ E), a point 5 miles NNW. The bay is shallow and dries at its head.

10.68

Between **Taao Jiao,** a point 1 mile N of Pai Yen, and **Huangmao Tou** (21° 46′ N, 112° 47′ E), a small peninsula 6 miles NE, the coast of Shangchuan Dao is rugged and very irregular. **Shanchou Wan,** which is entered 1½ miles SSW of Huangmao Tou, is encumbered with three small islets, of which the largest is 41 m high.

Ping Chou, 18 m high, lies 1 mile N of the W entrance point of Shanchou Wan. Another islet, 15 m high, lies 1¾ cables SE of Ping Chou.

10.69

There are two large open bays on the E side of Shangchuan Dao, divided by a point off which lies a group of rocks.

A beacon (21° 36′ N, 112° 48′ E) stands 3 miles NE of Shangchuan Jiao on the S entrance point of **Cha Wan,** the S bay, and another beacon stands on **Chunghsin Chou,** 51 m high, the S rock of the group dividing the bays.

There is a brightly lit beach resort in **Pei Wan,** the N bay.

Charts 2562, 1555

10.69a

Sanxia Kou is the passage between **Qinglan Tou** (21° 47′ N, 112° 52′ E), the NE extremity of Shangchuan Dao, and Tong Kua (10.61), 5 miles NE. There are depths of 7 m to 11 m in the fairway. Rocks lie up to ¾ mile NE of Qinglan Tou.

Anchorage can be obtained in the S part of the approach to Sanxia Kou in depths of 9 m to 11 m, soft mud.

Chart 1555

10.70

Weijia Dao, a rocky island 202 m high, lies 1½ miles E of Shangchuan Jiao (10.67) and is separated from the S side of Shangchuan Dao by a deep passage, 2 cables wide, bordered by high cliffs. A **light** is exhibited from a white round structure, 3 m in height, near the SW end of Weijia Dao.

Wuzhu Zhou (21° 36′ N, 112° 53′ E), 234 m high, is situated 3½ miles ENE of Weijia Dao: it has a barren aspect and a flat top.

10.71

Tidal streams. Outside the islands off this part of the coast streams set E and W at rates of 1½ to 2 knots: inside the islands they attain a greater rate.

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CHAPTER 11

SOUTH COAST OF CHINA—TONG KWA TO DAHENGQIN DAO

GENERAL REMARKS

Charts 2562, 1555

11.1

Between the S extremity of Tong Kwa peninsula (21° 51′ N, 112° 54′ E) (10.61) and Dahengqin Dao (Wong Kum) (11.14), an island 36 miles ENE, the coast is formed by the extensive deltas of T'an Chiang and Hsi Chiang. T'an Chiang, Hsi Chiang and Zhujiang (12.52) are interconnected with numerous waterways which were described in detail in former editions of this volume, but since no recent information about them is held and only the channel leading to Guangzhou (12.93) is open to navigation by foreign vessels, these waterways are no longer described.

11.2

No vessel should enter T'an Chiang or Hsi Chiang unless under pilotage or having local knowledge. Permission to enter these waters must be obtained from the Government of the People's Republic of China.

TONG KWA TO DAHENGQIN DAO

Charts 2562, 1555

T'an Chiang

11.3

T'an Chiang, formerly known as Tam Kong or South West River, flows into the head of **Yamen Waikou,** a bay entered between the E extremity of Tong Kwa peninsula and Nanshui Dao (Sam Hoi Chuk) (11.11), 8½ miles E.

Islands fronting the approaches to T'an Chiang

11.4

Dajin (Taikam) (21° 52′ N, 113° 02′ E), an island lying 6½ miles E of the S extremity of Tong Kwa peninsula, has four peaks, the highest of which rises to a height of 378 m on the E side. The island is of dark aspect, and, in clear weather, red streaks are visible on it. There is a small bay in the S part of the island; near the beach and behind a mound of sand at the head of the bay, there is a village.

Dajin is separated from the mainland, 2¼ miles NW, by **Tung-ku Hai** in which the depths are less than 2·5 m.

Several rocks and islets extend 5 miles S from Dajin. A rock 4 m high stands close off **Fengwei Zui,** the SW extremity of Dajin and a rocky islet, 16 m high, with a rock which dries 2·1 m close SSW of it, stands ½ mile SSW of the same point.

Fangui Zhou (White Wizard), 44 m high, and **Xiaojin (South Wizard)** (21° 48′ N, 113° 01′ E), 75 m high, stand 1 mile SE and 3 miles S respectively of Fengwei Zui. A rock, 2·5 m high, stands ¾ mile S of Xiaojin.

11.5

A **light** is exhibited from a white round structure on Xiaojin.

11.6

Sanbeijiu (Flies), a group of rocks 32 m high, is situated 1¼ miles S of Xiaojin. The group should be given a wide berth since the area S of it has not been surveyed.

11.7

Gaolan Liedao is a group of islands in the SE approaches to Yamen Waikou (11.3). **Hebao Dao (Kukok Ngao Kok),** the S island in this group, rises to a height of 384 m and is precipitous in its W part; it lies 5 miles E of Dajin. A rock, 5 m high, stands close off the S extremity of the island. The N side of the island is indented by two bays; **Ta Wan** is the W bay, at the head of which is a large fishing village.

Good **anchorage,** sheltered from NE winds, may be obtained 1½ miles off the high W side of Hebao Dao in a depth of 9 m.

11.8

Gaolan Dao (Kau Lan) (21° 55′ N, 113° 15′ E), 416 m high, lies 2½ miles NE of Hebao Dao and is the largest island in Gaolan Liedao. Below-water rocks fringe the SE side of the island in places, and there is a rock which dries 1·2 m, ½ mile NE of the S extremity of the island and 1 cable offshore. A sand slide, situated on the NE side of the island, is prominent from E. **Wen Zhou (Sam Long),** 83 m high, lies ¾ mile E of Gaolan Dao: **Yuan Zhou,** an islet 51 m high, lies ¼ mile N of Wen Zhou, with an above-water rock between. The SW side of Gaolan Dao is indented by two small bays; vessels of draught up to 5·2 m may obtain good **anchorage,** mud bottom, in the NW bay.

11.9

Damang (Tai Mong), an island 267 m high, lies 2 miles NW of Hebao Dao. **Sanjiaoshan Dao** (Rusty Island), 140 m high, lies 1 mile NE of Damang and is the N island in Gaolan Liedao.

11.10

Anchorage. A channel runs through Gaolan Liedao between Hebao Dao and Damang on the SW side and Gaolan Dao and Sanjiaoshan Dao on the NE side. Small craft may obtain anchorage in this channel.

11.11

Nanshui Dao (Sam Hoi Chuk), an island 251 m high, lies 2½ miles NW of Gaolan Dao and is almost connected to the mainland N.

Charts 3026, 2562, 1555

Hsi Chiang

11.12

Hsi Chiang, formerly known as Si Kiang or West River, rises in Yunnan province and discharges into the China Sea mainly between Gaolan Dao (21° 55′ N, 113° 15′ E) (11.8) and Dahengqin Dao (11.14), 15 miles

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NE. In its upper reaches Hsi Chiang is known as Yu Chiang. There are three entrances to Hsi Chiang. The W entrance is entered at the head of Yamen Waikou (11.3), close E of the mouth of T'an Chiang. The centre channel is approached between Gaolan Dao and Sanzao Dao (11.13). **Mo-tao Men,** the E and principal channel, is entered close W of Dahengqin Dao.

Between its mouth and **San-shui** (23° 10′ N, 112° 50′ E), 75 miles NNW of Dahengqin Dao, the E side of Hsi Chiang is connected with Zhujiang by a large number of creeks and channels. **Pei Chiang,** formerly known as North River, flows into Hsi Chiang at San-shui.

Islands fronting the approaches to Hsi Chiang

11.13

Sanzao Dao (San Tsao or **San Chau)** (22° 02′ N, 113° 21′ E), situated 4 miles NE of Gaolan Dao (11.8), is a large irregular shaped island. **Heng Zhou (Heng Chou** or **Ross Island),** a small island situated 1¼ miles NE of Sanzao Dao, lies on the W side of the entrance to Mo-tao Men.

11.14

On the E side of the entrance to Mo-tao Men, **Dahengqin Dao (Ta-heng-chin** or **Wong Kum)** (22° 06′ N, 113° 31′ E), a large irregular island, rises to an elevation of 456 m in **Naobei Shan (Mount Adams),** situated near its centre. **Shilan Zhou (Shih-lan Chou** or **Water Islands),** consisting of two islets close together, lies ¼ mile S of Dahengqin Dao.

Hsiang Chou lies 1 mile NW of Shilan Zhou and a short disance offshore. **Shenching Wan** is entered between the W extremity of Dahengqin Dao and a point 8 cables SE. Two rocks, close together and awash, lie close off the S entrance point of this bay. It was reported in 1928 that the positions of these two rocks could be identified at any state of the tide.

11.15

Tidal streams. Outside the entrance to Mo-tao Men the direction of the flood stream is governed principally by the wind; with strong E winds it turns WNW and with SW winds it turns N. The ebb stream generally runs SW.

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CHAPTER 12

ZHUJIANG KOU AND ITS APPROACHES INCLUDING MACAU, HUANGPU AND GUANGZHOU—CHANNELS BETWEEN HSI CHIANG AND ZHUJIANG

GENERAL REMARKS

Charts 341, 3026, 1555

12.1

The entrance to **Zhujiang Kou,** the river estuary of Zhujiang, lies between the SE extremity of Dahengqin Dao (22° 05′ N, 113° 55′ E) on the W side and Fan Lau Kok (22° 12′ N, 113° 51′ E), the SW extremity of Tai Yue Shan (Lantau) on the E side.

Wanshan Qundo (12.5) lies in the S approach: Jiapeng Liedao (13.5) and Dangan Liedao (13.6) with several islands NW of them lie in the SE approach.

Daxi Shuidao (12.16), with moderate depths, leads into the estuary from the SW; a deep channel between Zhu Zhou (12.9) and Ai Zhou (12.11) leads from the S; and Tai Yue Hoi Hap (Lantau Channel) leads from the E between Tai Yue Shan and the islands SW of it. The estuary can also be approached from the W end of Hong Kong harbour, passing N of Tai Yue Shan, thence through Urmston Road (12.39).

See 12.3 for defined routes.

12.2

Pilotage is compulsory for all ports within the entrance to Zhujiang Kou including Macau. The boarding place is in the quarantine anchorage W of Guishan Dao (12.13). The pilot launches display the International Code Flag R.

The vessel's ETA should be signalled 24 hours and 12 hours in advance.

12.3

Defined routes. Vessels should approach Zhujiang Kou only by the following defined routes which are shown on the charts.

From seaward. Position 21° 47′·7 N, 113° 49′·5 E, 6½ miles WSW of Wenwei Zhou (13.5), should be approached on a course of 047° or 318°: thence a course of 013° should be steered to pass between Zhu Zhou and Ai Zhou and thence the courses are 334° and 311° to the quarantine anchorage W of Guishan Dao.

From Hong Kong. From position 22° 08′·7 N, 113° 55′·5 E, 1½ miles ESE of Tai A Chau Light, the course is 295° to position 1¼ miles N of Kongshutou (12.13), thence 204° for 1·6 miles, thence 180° to the quarantine anchorage.

12.4

Prohibited area. The waters N of a line joining Xiaowanshan Dao (12.5), Wenwei Zhou (13.5) and Dangan Dao (13.6), including Lema Channel (Dangan Shuidao) (13.36), are prohibited to foreign vessels except for the defined routes given above and the designated routes given in 13.3.

ISLANDS IN THE APPROACHES TO ZHUJIANG KOU

Chart 341

Wanshan Qundo

12.5

Wanshan Qundo is the S group of a large number of islands which lie in the S approach to Zhujiang Kou. The islands are useful landmarks for vessels approaching Hong Kong or Zhujiang Kou from the SW.

Dawanshan Dao (21° 57′ N, 113° 44′ E), the outer island of the group, is steep, bold and rocky. The N part of the island is dome shaped and **Dawan Ding,** the summit, is 447 m high: the appearance of the island differs from all the others in the group, although most of them are high. **Wanshan Wan** is a small inlet on the SW side of the island where fishing boats shelter during the NE Monsoon. An islet lies close off a village at the head of the inlet.

Good anchorage for small vessels may be obtained off the entrance to Wanshan Wan during the NE Monsoon, with the islet at the head of the inlet bearing 070° distant 4 cables in a depth of 22 m, mud.

Xiaowanshan Dao, 285 m high, lies ½ mile WNW of Dawanshan Dao, separated from it by **Nanping Men,** a deep channel 3½ cables wide. Several rocks lie close off the SE extremity of Xiaowanshan Dao, and a rock 20 m high lies 1 cable off its NE end. A rock, with a depth of less than 2 m over it, lies 6 cables W of the SW extremity of Xiaowanshan Dao.

Yamu Pai, a rock which dries 1·5 m, is steep-to and lies in the N approach to Nanping Men ¾ mile ENE of the N extremity of Xiowanshan Dao.

12.6

Xiaoputai (22° 02′ N, 113° 38′ E), the W island of Wanshan Qundo, lies 5 miles NW of Xiaowanshan Dao. It is 62 m high and sloping.

In 1986 a light was reported to be exhibited from a white column, 4 m to 5 m high, on Xiaoputai.

Huangmao Dao, 104 m high with a peaked hill at its N end, lies 1½ miles E of Xiaoputai. **Bai Pai,** 8 m high with a drying rock close SW of it, lies 3½ cables W of the middle of Huangmao Dao.

Good anchorage may be obtained for small craft during the NE Monsoon off the bay on the W side of Huangmao Dao 2½ cables SE of Bai Pai in a depth of 13 m, mud.

Dalie Dao, 134 m high, lies 1 mile E of Huangmao Dao with **Xiaolie Dao,** 120 m high, close off its S end. A rock, which dries 1·2 m, and **Yeding Shi,** a rock with a depth of 3·8 m over it, lie 2 cables and ¾ mile, respectively, N of Dalie Dao.

12.7

Dongao Dao, 168 m high, lies 1½ miles ESE of Huangmao Dao and with Dalie Dao is separated from it by **Huangmao Men.** There is a bay with a sandy beach at its head on the SW side of Dongao Dao: it affords shelter to small craft during the NE Monsoon.

Dongao Wan is situated on the NE side of Dongao Dao. The land on either side of this inlet rises steeply and terminates in a valley at its head where there is a sandy beach: the sides of the inlet are fringed with rocks. **Bei Yan,** a rock with a depth of 0·3 m over it and steep-to, lies in the N approach to Dongao Wan 2 cables off the NE extremity of the island. **Xiaoye Shi,** with a depth of 2·8 m over it, and steep-to, lies in the E approach to the same inlet, 8 cables ESE of the NE extremity of Dongao Dao.

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Tidal streams set NW and SE outside the entrance to Dongao Wan and are fairly strong; inside the inlet the streams are weak.

Anchorage with good shelter at all times may be obtained in Dongao Wan by small vessels with local knowledge. Although open to the NE Monsoon, the swell does not enter the inlet, and a vessel can be run into the mud towards the head of the inlet without risk.

12.8

Baili Dao (21° 59′ N, 113° 45′ E), 298 m high, lies 1½ miles SE of Dongao Dao, and is separated from it by **Laiwan Men.** On the NE part of Baili Dao there is a remarkable conical hill 253 m high. The hills on the S side of the island are studded with black rocks. The island is indented by several small coves and rocks fringe the coast in places. A rock, with a depth of 0·8 m over it, lies ½ mile S of the NW extremity of Baili Dao and 2 cables offshore. An islet, 33 m high and rocky, with a below-water rock close E of it, lies 2 cables N of the NE extremity of Baili Dao.

Shagou Pai, a rock with a depth of 1·0 m over it, lies 2 miles N of the NE extremity of Baili Dao: the sea breaks over it at low water springs when there is a moderate sea.

Gui Zhou, 86 m high, lies ¾ mile E of Baili Dao.

12.9

Zhu Zhou (22° 00′ N, 113° 50′ E), 164 m high, lies 2½ miles E of Baili Dao. A steep rocky islet, 56 m high, lies off the SE side of Zhu Zhou.

A light is exhibited from a white round tower on the summit of Zhu Zhou.

Heng Zhou, 114 m high, lies 3 cables W of Zhu Zhou.

Anchorage, sheltered from the NE Monsoon, may be obtained by small vessels at the S end of the channel between Zhu Zhou and Heng Zhou with Zhu Zhou Light-structure bearing 095° 6 cables, in a depth of 19 m, mud. A 3·7 m shoal lies at the N end of this channel.

An area in which anchoring and fishing are prohibited extends ENE from Zhu Zhou to Aizhouzai (12.11).

12.10

Dongtou Shi, which dries 1·5 m and is steep-to, lies 3 miles N of Zhu Zhou.

Sanya Pai (22° 05′ N, 113° 48′ E), 12 m high, lies 4½ miles NNW of Zhu Zhou. A light is exhibited from a white round structure on Sanya Pai.

Yu Pai, 15 m high, and another islet 6 m high, lie, respectively, 4½ cables SSW and 3 cables SW of Sanya Pai.

An area within which anchoring and fishing are prohibited extends NNE from Sanya Pai to Guishan Dao (12.13).

12.11

Ai Zhou (22° 03′ N, 113° 55′ E), 214 m high, lies 5 miles NE of Zhu Zhou. **Aizhouzai,** a smaller island 153 m high, lies close W of Ai Zhou and is separated from it by a narrow channel with a depth of 7·3 m in the fairway.

Toulou Zhou, 33 m high and surrounded by rocks, lies 1½ miles NE of Ai zhou.

Guishan Dao and adjacent islands

12.12

Dazhizhu Dao (22° 07′ N, 113° 54′ E), the E island of the group, lies 5 miles NNW of Ai Zhou. It is 244 m high and is inhabited. **Xiaohizhu Dao,** a smaller island, 108 m high, lies close W of Dazhizhu Dao.

12.13

Guishan Dao, 232 m high, lies 2 miles WNW of Xiaohizhu Dao. **Zhenxiangwei,** 58 m high, lies ½ mile S of the E extremity of Guishan Dao. The channel between Zhenxiangwei and Xiaohizhu is clear of dangers. **Zhongxin Zhou,** 132 m high, lies close N of the NW extremity of Guishan Dao.

A pilot station for Zhujiang Kou pilots is situated on the W side of Guishan Dao. A signal station stands on the summit of the island. See 12.2 for pilotage and 12.26 for quarantine and pilot anchorage W of Guishan Dao.

A light is exhibited from a white square tower on the S entrance point to **Yi Wan,** a bay on the W side of Guishan Dao.

Niutou Dao, 138 m high at its N end, lies NW of Zhongxin Zhou and is separated from it by **Niutou Men,** a channel 2 cables wide. **Kongshutou,** an islet 46 m high with a large rock on its summit, lies close off the NW extremity of Niutou Dao.

A light is exhibited from a white square tower on **Shilong Jiao,** the W extremity of Niutou Dao.

12.13a

Measured distance. Two beacons are situated near the NE extremity of Guishan Dao and another two near the SE extremity of Niutou Dao: each pair of beacons is in line bearing 239°. The measured distance between the transits of these two pairs of beacons on a course of 149° or 329° on the NE side of the islands is 2568 m.

Prohibited anchorage. A large area, within which anchorage is prohibited, extends NW from Guishan Dao thence N as far as Neilingding Dao (12.40).

12.14

Chitan (22° 07′ N, 113° 46′ E), 69 m high, lies 3 miles W of the S extremity of Guishan Dao. **Chitan Pai,** a ledge of rocks, extends 2 cables NW of Chitan.

Sichi Yan, a pinnacle which is awash, lies 1½ miles NE of Chitan.

12.15

Datou Zhou (22° 06′ N, 113° 42′ E), 156 m high near its NW end and gently sloping towards the E, is the S island of a group and lies 5½ miles NE of Xiaoputai (12.6).

Dalu Dao, 87 m high with a prominent rock on its summit, is a rocky island situated ½ mile N of Datu Zhou. **Dalu Pai,** an islet, lies ¼ mile N of Dalu Dao. **Xilu,** an island 44 m high, with **Jishiling Pai,** an islet 14 m high, 2 cables E of it, lies 6 cables NNE of Dalu Dao.

Sanjiaoshan Dao, 1¼ miles N of Dalu Dao, is 112 m high and rugged. A rock 1 m high stands 1 cable off its S side, and a bank with depths of less than 5 m over it extends 3 cables N from the island.

Qing Zhou, 97 m high and the N island of the group, lies 1¼ miles NNE of Sanjiaoshan Dao. A bank, with depths of less than 5 m over it, extends 3 cables NNW from the island.

Tidal streams. The ebb tidal stream sets strongly S along the W side of Datou Zhou and the other islands of the same group, and the flood tidal stream sets generally in a NW direction, though with many eddies off the salient points.

WEST SIDE OF APPROACH TO ZHUJIANG KOU

Chart 341

12.16

Daxi Shuidao is entered between the SE extremity of Dahengqin Dao (22° 05′ N, 113° 55′ E) (11.14) and Xiaoputai (12.6), the W island of Wanshan Qundo. It leads NNE along the W side of the group of islands in 12.15 into **Qingzhou Shuidao,** thence into Zhujiang Kou.

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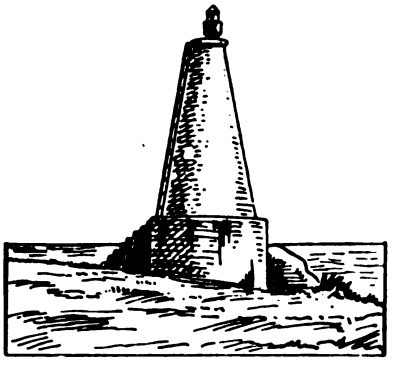
Chitan Men is the channel running NNE between the islands in 12.15 and Chitan (12.14).

12.17

Ilha de Coloane (Chinese name **Jiuao Dao**), 169 m high, lies 2 miles NNE of the SE extremity of Dahengqin Dao.

A **light** is exhibited from a metal tower on **Ponta Hac** (22° 07′ N, 113° 34′ E), the SE extremity of Ilha de Coloane.

A **light** is exhibited from a white conical masonry tower on a circular base, 6 m in height, on **Ponta de Ka-Hó,** the E extremity of Ilha de Coloane.



Ponta de Ka-Hó Light-structure
(Original dated 1935)

There is a power station near the N extremity of Ilha de Coloane about 8½ cables WNW of Ponta de Ka-Hó. **No 31 Light** is exhibited from the NE end of a jetty at the power station.

No 28 Light-buoy moored 4¾ cables N of Ponta de Ka-Hó marks the entrance to a channel leading to the power station jetty: No 29 Light-buoy is moored on the N side of the channel. **Leading lights** are exhibited, the rear from No 30a black and white metal structure on the causeway joining Ilha de Coloane to Ilha da Taipa, the front from No 30 black and white tripod on a platform about 475 m from the rear structure: in line bearing 270° they lead along the channel.

Ilha de Taipa (Chinese name **Dangzi Dao**), situated 1 mile N of Ilha de Coloane, is 157 m high at its E end; **Ponta Cabrita** is its NE extremity. It is joined to Ilha de Coloane by a causeway. **Ilhéu Kai Kiong,** 10 m high, lies close SE of the SE extremity of Ilha de Taipa.

Canal de Taipa, the channel W of Ilha de Coloane and Ilha de Taipa, is shallow. Light-beacons stand on the W side of the channel at its S and N ends and a light-buoy is moored on the E side 2 miles from the S entrance.

In 1982 it was reported that plans to reclaim an area of shallow water between Ilha de Coloane and Ilha de Taipa for industrial purposes were under consideration.

MACAU

Chart 341

12.18

Macau (Chinese name **Aomen**), a Portuguese settlement (1.75), is situated on a peninsula at the SE end of Aomen Dao on the slopes of hills, 60 m to 90 m high.

Fortaleza de Guia Lighthouse (22° 12′ N, 113° 33′ E) is a circular white tower with a red lantern, 14 m in height, situated on the fort on the summit of the peninsula.

Fortaleza de Guia Lighthouse from SE
(Original dated 1935)

A **signal station,** at which typhoon warnings are displayed (see 13.110), and some yellow buildings, stand near the lighthouse; four radio masts, three of which are painted red and white, stand on a hill ½ mile NE of Fortaleza de Guia.

Macau Harbour, consisting of an outer artificial harbour and an inner harbour, is situated on the SE and W sides of Macau peninsula.

12.19

Pilotage is compulsory for entry to the port or channels, and is provided free of charge. Pilots can be obtained from the pilot station situated W of Guishan Dao (12.13), or locally by displaying Flag G of the *International Code of Signals.*

12.20

Macau Roadstead, which is shallow and liable to silt, lies between Macau peninsula and Ilha de Taipa, 1½ miles S. Except in the channel leading to Macau Inner Harbour on its N side, the roadstead has general depths from 0·3 to 1·8 m N of Ilha de Taipa, increasing to 4·6 m E of that island. **Pedro d'Areca,** which dries, lies in the NW part of the roadstead 4 cables SE of **Ponta de Barra,** the S extremity of Macau peninsula, and is marked by No 14 Light-beacon.

A bridge, with a vertical clearance of 34 m, connects Macau with Ilha de Taipa.

Anchorage may be obtained at the seaward end of the approach channels 1½ miles E of Ponta Cabrita (12.17), the NE extremity of Ilha de Taipa.

Large vessels usually anchor in 7 m, mud, 7 to 8 miles SE of Fortaleza de Guia where cargo can be handled by lighters.

12.21

Macau Outer Harbour is situated on the SE side of the peninsula and dries from 0·3 to 0·6 m. It is protected by breakwaters, the NE of which extends 1 mile SE from the actual harbour entrance to form East Mole, which protects the N side of the approach channel. The S side of the entrance to the approach channel is protected by West Mole, ½ mile in length.

Light-beacons are established at each end and in the centre of West Mole.

The outer harbour is used mainly by ferries and hydrofoils.

Leading lights are exhibited when vessels are

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expected from Nos 8, 8a and 9 Light-beacons (metal framework towers). No 9, the rear, is situated 2 cables E of Fortaleza de Guia; No 8a is the centre; and No 8 is on the roof of the pier 3 cables SE of the rear.

No 21 Light-buoy (red and white stripes) is moored on the leading line 2¼ miles from the harbour entrance. No 21a Light-buoy is moored on the NE side of the channel 3 cables NW of No 21 Light-beacon and Nos 1 and 2 Light-beacons stand on the NE and SW sides of the channel 13 cables from the entrance. A racon transmits from No 2 Light-beacon. From there inwards the channel is marked by light-beacons.

The channel is dredged to 4·4 m (14 ft) (1982).

Vessels berth at the pier, which is 90 m long, situated near the front leading light.

Tidal streams run strongly across the outer entrance to the channels.

12.22

Macau Inner Harbour is situated on the W side of the peninsula: it is the commercial harbour.

No 19 Light-buoy moored 1¼ miles E of Ponta Cabrita (12.17) marks the approach to the entrance channel. Thence the channel passes SW of No 2 Light-beacon and West Mole, and round Ponta de Barra to the wharves. It is marked by light-buoys; light-beacons mark the passage under the bridge connecting Macau to Ilha de Taipa.

The channel is about 50 m wide and is dredged to 3·5 m (11 ft) (1982). Vessels drawing 3·05 m can enter at any time: those drawing more are dependant on the tide. There are general depths of 3·0 m to 3·7 m alongside the wharves.

There is a container terminal with a quay 152 m long with a depth of 6 m alongside at HW.

12.22a

Directions. Vessels intending to enter Outer Harbour should approach on a WSW course with No 21 Light-buoy approximately in line with Punta Cabrita and pass midway between Nos 21 and 21a Light-buoys. Those leaving Outer Harbour should pass SW of No 21 Light-buoy before turning onto an ENE course, passing midway between Nos 19 and 21 Light-buoys.

Vessels entering and leaving Inner Harbour should pass SW of No 19 Light-buoy.

Qing Zhou traffic separation scheme for high speed craft proceeding between Hong Kong and Macau has been established about 5 miles ENE of the entrance to the Macau approach channels. The scheme should only be used by high speed craft (which the Chinese authorities do not define): other vessels should keep clear if practicable. The scheme has not been adopted by IMO.

The separation zone is marked at the E end by No 1 Light-buoy (safe water) (22° 12′ N, 113° 44′ E) and at the W end by No 2 Light-buoy (safe water), 3½ miles WSW of No 1. The traffic lanes N and S of the separation zone are 500 m wide.

Vessels joining or leaving the scheme should do so at the end of the appropriate lane: those crossing should do so as nearly at right angles as practicable.

12.23

Macau is a duty free port with a population in 1962 of 169 300. The principal exports are fish, matches, textiles and tobacco; imports include food and heavy machinery. There is a meteorological station at Macau.

Facilities. Tugs and lighters are available for working cargo.

Minor repairs can be carried out at the naval yard, where there is a small dry dock capable of handling vessels of 40 m in length and draught up to 2·4 m.

There are several hospitals.

Supplies. Fresh water, which is reported to be brackish and should be boiled before drinking, is laid on at the jetties and can be supplied by water-boat to ships at anchor during fine weather.

Small quantities of diesel fuel can be supplied in drums.

Provisions and stores can be obtained.

Communications. There is frequent communication by sea with Guangzhou and Hong Kong.

There is a coast radio station at Macau.

Storm signals are displayed at the signal station at Fortaleza de Guia. The local storm signal code is the same as for Hong Kong; see 13.110.

Signals. Vessels using the channel during daylight shall display two black balls disposed vertically, and at night two green lights disposed vertically in lieu.

When dredging is in progress in the channel, an approaching vessel shall sound one long blast which will be answered from the dredger by four long blasts when her mooring wires have been sufficiently eased to permit the vessel to pass in safety.

Regulations. No vessel may anchor in the fairway of any channel.

A vessel which has not been visited within 24 hours of her arrival, shall forthwith present the ship's papers at the Harbour Master's office.

All vessels shall notify the Harbour Master of the proposed date and time of departure; except under exceptional circumstances such notification shall be given not less than six hours in advance.

Vessels proposing to berth in the Inner Harbour must previously consult the harbour authorities. Vessels of more than 3·7 m draught usually discharge their cargo into lighters at the anchorage (12.20).

EAST SIDE OF APPROACH TO ZHUJIANG KOU

Chart 341

Tai Yue Hoi Hap

12.24

Tai Yue Hoi Hap (Lantau Channel), which leads into Zhujiang Kou from SE, lies SW of Soko Islands (22° 10′ N, 113° 54′ E) and the SW end of Tai Yue Shan (Lantau). Dazhizhu Dao, Guishan Dao, Zhongxin Zhou and Niutou Dao (12.12, 12.13) lie on the SW side of the channel. Tai Yue Hoi Hap is nearly 2 miles wide in its narrowest part and is free from dangers.

For a measured distance on the SW side of Tai Yue Hoi Hap see 12.13.

12.25

Soko Islands are a group of islands and rocks lying on the NE side of Tai Yue Hoi Hap. They lie at the S end of a bank with depths of less than 10 m over it, which extends 3½ miles SE from the S side of Tai Yue Shan.

Tai A Chau (22° 10′ N, 113° 54′ E), the SW island of the group, which rises steeply to an elevation of 150 m, lies 2 miles NNE of Dazhizhu Dao (12.12). A rock, which dries 1·5 m, lies 2 cables off the NE end of the island. An islet, 40 m high, with a below-water rock close S of it, lies ½ mile SE of Tai A Chau.

A **light** is exhibited from a white concrete tower situated on the S extremity of Tai A Chau.

Siu A Chau, 117 m high, the N island of the Soko Islands, lies ½ mile N of Tai A Chau. An islet, 44 m high with a small islet close NE of it, lies 2 cables E of Siu A Chau, and a sandspit, with a least depth of 2·1 m over it, extends 1¾ miles from its W side; a rock, which dries

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1·2 m, stands 3 cables E of the N extremity of Siu A Chau. Four rocky islets, the highest of which, **Ma Chau,** has an elevation of 35 m, are situated between the W ends of Tai A Chau and Siu A Chau.

A **light** is exhibited from a white square pedestal standing on the N extremity of Siu A Chau.

12.25a

A light is exhibited from a square white tower on **Fan Lau Kok** (22° 12′ N, 113° 51′ E), the SW extremity of Tai Yue Shan.

Sui A Chau Light-buoy (safe water), moored 7 cables SE of Fan Lau Kok, marks the W end of a traffic separation scheme leading to and from Hong Kong. For details of the scheme see 13.22.

Tidal streams. In Tai Yue Hoi Hap the ebb stream, setting SE, runs strongly with many eddies, particularly in July and August when its rate at springs is sometimes 4½ knots. Between Niutou Dao (22° 10′ N, 113° 48′ E) and the SW extremity of Tai Yue Shan, there are strong eddies.

OUTER PART OF ZHUJIANG KOU

Chart 341

Western side of Zhujiang Kou

12.26

Between Macau and Jiouzhou Gang, 2½ miles NE, there is a shallow bay.

Jiuzhou Gang (22° 14′·5 N, 113° 35′ E) is under development (1987) as a general cargo port and a supply base for the offshore oil industry. It is protected by a breakwater extending SSE from the point at the N end of the bay. A wharf, 500 m long, can accommodate vessels of 10 000 dwt.

An approach channel, 10 miles long, dredged to 8 m (26 ft) (1986), leads NW to Jiuzhou Gang from a position 1¼ miles WSW of Datou Zhou (12.15). No 2 Light-buoy (port hand; racon) marks the entrance to the channel: thence it is marked by light-buoys (port and starboard hand).

Anchorages. A pilot anchorage for small vessels from Hong Kong or Macau is situated in position 22° 13′·5 N, 113° 37′ E, 2 miles ESE of Jiuzhou Gang.

A pilot anchorage for larger vessels is situated in position 22° 07′·8 N, 113° 40′·4 E, on the NE side of the approach channel 2 miles NW of its entrance.

An anchorage for vessels waiting for the tide and for loading and unloading is centred in position 22° 04′ N, 113° 44′ E, 3½ miles ESE of the entrance to the approach channel.

12.26a

A group of islands and rocks extends 2 miles E of the point close NE of Jiuzhou Gang. **Dajiu Zhou** (22° 14′·5 N, 113° 37′ E), the largest, is 54 m high. **Da Pai, Jilongshan** and **Heng Zhou** are islets lying, respectively, 4 cables E, 6 cables NNE and 8 cables WNW of Dajiu Zhou.

12.27

Xiangzhou Wan is entered between a point 1½ miles N of Juizhou Gang and another point 3½ miles farther NNE. **Yelishan,** an island 65 m high, lies 1 mile N of the S entrance point of the bay. Rocks lie up to ½ mile off the SE side of Yelishan.

A breakwater extends 3 cables NNW from the N extremity of Yelishan, forming a typhoon shelter at the fishing port of **Zhuhai,** situated on the mainland abreast Yelishan. A light-beacon stands on the breakwater head.

Bai Pai (22° 17′ N, 113° 37′ E), a rock 8 m high, lies 1½ miles ENE of the E extremity of Yelishan, and a light-beacon stands on a rock 9 cables NE of the same point.

Charts 341, 343

12.28

Between the N entrance point of Xiangzhou Wan and **Tonggu Jiao** (22° 23′ N, 113° 37′ E), a rock fringed point 3½ miles NNE, there are two shallow bays. **She Zhou,** 29 m high, and **Haotian,** 43 m high, are two islets lying a short distance offshore in the S part of the S bay. At Tonggu Jiao the coast turns abruptly W and forms the S side of an extensive and shallow bay.

Chart 343

Qi'ao Dao, a large island 184 m high, lies 1 mile N of Tonggu Jiao and is separted from it by **Jinxing Men.** This channel which is approached from S is safe for small vessels. **Jinxingdan,** a reef with foul ground extending 3 cables WNW from it, lies 8 cables NW of Tonggu Jiao, and several below-water rocks lie 2¼ miles WNW of the same point.

Anchorage can be obtained 1½ miles NW of Tonggu Jiao in a depth of 9 m, soft bottom.

A light is exhibited from a white triangular metal structure on **Dawang Jiao,** the NE extremity of Qi'ao Dao.

Chart 341

Eastern side of Zhujiang Kou

12.29

Between Fan Lau Kok (22° 12′ N, 113° 51′ E) (12.25a), the SW extremity of Tai Yue Shan, and **Kai Yet Kok (Peaked Hill),** a small islet 67 m high, joined to Tai Yue Shan by a drying bank, 1¼ miles NNW, depths of less than 5 m extend 4 cables offshore. **Wong Fa Pi,** a rock which dries 0·6 m, lies 1 mile NNW of Kai Yet Kok.

The coast recedes 1¾ miles N of Kai Yet Kok to form two shallow bays which mainly dry; the N of these bays is **Tai O Wan.** The N side of Tai O Wan is formed by a small steep-sided promontory 101 m high, which is crowned by a white building and a flagstaff; the seaward end of the promontory terminates in **Bluff Point.**

Near the S end of Bluff Point, there is a prominent police station and flagstaff, painted black and white, and a jetty 52 m long with a depth of 3·0 m at its head. E of the jetty there is a small junk harbour which dries, thence numerous buildings extend along the shore to the large fishing village of **Tai O,** which is situated at the root of the promontory. An extensive sea wall encloses salt pans at the head of the bay.

A **light** is exhibited from a white concrete tripod close NW of the salt pans S of Tai O village.

Storm signals are displayed at Tai O police station when local storm signals are displayed in Hong Kong Harbour (13.110).

There is a daily ferry service between Tai O and Hong Kong.

12.30

Po Chue Tam is entered on the N side of the peninsula, ¾ mile ENE of Bluff Point; it is connected to Tai O Wan by a narrow drying channel which is navigable at high water by boats with local knowledge.

A pipeline extends 1½ cables NW from the N point of the peninsula.

Chart 1919

Midway between Po Chue Tam and a small projecting point (22° 17′·7 N, 113° 53′·7 E), the NW

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extremity of Tai Yue Shan, there is a small shallow bay with villages, at which there are jetties, on its shores.

South side of Chi Shui-Men

12.31

Chi Shui-Men, which leads from Zhujiang Kou to the W end of the channel leading to Kap Shui Mun and Rambler Channel, is entered between the NW extremity of Tai Yue Shan and Tap Shek Kok (22° 23′ N, 113° 53′ E) (12.37), 5 miles NNE.

Lam Chau, 41 m high and fringed with rocks on its NW, NE and S sides, lies on the S side of Chi Shui-men ¾ mile NE of the NW extremity of Tai Yue Shan.

Tung Chung Wan, which dries, is entered 1¼ miles SE of Lam Chau. The village of **Tung Chung** is situated at the head of the bay. There is a jetty, with a depth of 0·4 m at its head, on the NW side of the bay and a jetty with a depth of 2·7 m at its head at **Ma Wan Chung** on the NE side of the bay.

The daily ferry service between Tai O (12.29) and Hong Kong calls at Tung Chung.

Chek Lap Kok is barren and 119 m high; it lies ¼ mile NW of the E side of Tung Chung Wan and is separated from it by a narrow channel with depths of over 5 m in the fairway. A buoy (can; red and white chequers; can-shaped topmark) is moored 1¾ cables S of the S end of Chek Lap Kok, and marks the S side of the channel for craft approaching the jetty at Ma Wan Chung from E. A channel, with a depth of 2·4 m, leads SE to the jetty at Ma Wan Chung.

Red Point (22° 19′ N, 113° 57′ E), the NE extremity of Chek Lap Kok is 43 m high and has a remarkable rocky appearance. There are several off-lying rocks, from 1 to 2 m high, close off the W coast of the island and below-water rocks extend 1 cable NE from Red Point. There is a boat jetty, with a depth of 0·3 m at its head, 9 cables WSW of Red Point, and two jetties which dry 0·3 m at their heads 1¾ miles SSW of the same point.

12.32

Chek Lap Kok Bank, with a least depth of 4·2 m over it, lies ½ mile NW of Chek Lap Kok. The channel between this bank and Sha Chau (12.39), with Tsing Shan (12.37) bearing 041°, had a least depth of 5·5 m in 1972, but the channel has not been recently surveyed. Between this bank and the islands of Tai Yue Shan and Chek Lap Kok, there is a channel 4 cables wide with, in 1985, a charted depth of 5·2 m in the fairway.

12.33

The coast between Tung Chung Wan and Cheung Sok (13.57), 6 miles ENE, is steep and scattered with villages. There are jetties at **Tai Po** and **Pak Mong** 8½ cables and 2 miles, respectively, ENE of the S extremity of Chek Lap Kok.

12.34

The Brothers (22° 20′ N, 113° 58′ E), a group of islands, lie between 1¼ and 2¼ miles ENE of Red Point (12.31). **Tai Mo To** is 66 m high and **Siu Mo To** is 58 m high. Both islets are steep and covered with low bushes; the W side of Siu Mo To has red cliffs. A bank, with depths of less than 5 m over it, extends 5 cables from the W side of Tai Mo To, and 2½ cables from its E side. A bank with depths of less than 5 m extends 3 cables from the W side of Siu Mo To and a detached bank with a depth of 2·7 m over its W end, lies close off the E side of the same islet. Rocks, up to 1 m high, stand close W of Siu Mo To. **Tsz Kan Chau,** 9 m high, lies 4 cables S of Siu Mo To. A bank, with depths of 2·7 m over it, extends ½ cable E of Tsz Kan Chau.

Anchorage may be obtained in depths of 10 to 15 m in the channel S of The Brothers between Red Point and Cheung Sok. This anchorage is mainly used by laid-up vessels.

A group of submarine cables is laid between the vicinity of a position 1½ miles E of Tsz Kan Chau on the S shore and Tai Lam Chung Bay (12.35) on the N shore of Chi Shui-Men. Beacons mark the limits of the cable area on both shores.

North side of Chi Shui-Men

12.35

Tai Lam Chung Bay, shallow and sandy, lies close W of **Tai Lam Kok** (22° 21′ N, 114° 01′ E), situated 2¼ miles ENE of Siu Mo To. A jetty 40 m long with a depth of 4·9 m alongside, extends from the W side of the bay.

Storm signals are displayed at Tai Lam Chung Marine Police Operations Base when local storm signals are displayed in Hong Kong Harbour (13.110).

For submarine power cables laid S from Tai Lam Chung Bay see 12.34.

Between Tai Lam Chung Bay and Pei Pa Chau, 1 mile W, **Lok On Pai** desalination plant stands on reclaimed land. Two chimneys, 122 m high, at the plant are conspicuous and there is a wharf 107 m long with a depth of 6·1 m alongside.

Pei Pa Chau (22° 22′ N, 113° 59′ E), on which there are several conspicuous buildings, is joined to the mainland E by a causeway. There is a boat jetty on the N side of the island.

A light is exhibited from a white column on a rock 1 cable WSW of the W extremity of Pei Pa Chau.

12.36

Tuen Mun new town, in which there are many tower blocks, is situated 1¾ miles NW of Pei Pa Chau at the head of **Tsing Shan Wan,** a shallow bay. The inner part of the bay is enclosed by breakwaters to form a typhoon shelter. Lights are exhibited from the breakwater heads.

A light is exhibited from a white concrete tripod marking a sewer outfall at the W end of the town.

12.37

The coast trends 1 mile WSW from the W end of Tuen Mun new town to **Mong Hau Shek** (22° 22′ N, 113° 56′ E). A rock, marked by a beacon, lies 1 cable offshore 1½ cables W of the above outfall. Another rock, 0·2 m high and connected to the shore by a drying sandy ridge, stands midway between the W end of the town and Mong Hau Shek.

In 1985 construction and reclamation were in progress up to 5½ cables ENE of Mong Hau Shek.

A pipeline extends 5 cables SW from Mong Hau Shek.

Tsing Shan, 581 m high is the summit of the promontory which forms the SE side of Hau Hoi Wan (12.44), and lies 1½ miles NNE of Mong Hau Shek. A television mast, 10 m high and marked by an air obstruction light, is situated 1½ cables NNE of Tsing Shan.

12.37a

Castle Peak Power Station and a cement plant stand on a large area of reclaimed land which extends into deep water and up to 7 cables SE of **Tap Shek Kok** (22° 23′ N, 113° 55′ E), a point 1½ miles WNW of Mong Hau Shek. There are several conspicuous chimneys in the area. Deep-draught coal carriers berth at an L-shaped jetty, 550 m long with a depth of 19·4 m alongside, at the power station. There is another L-shaped jetty at the cement plant at the SE end of the reclaimed land.

12.37b

Between Tap Shek Kok (22° 23′ N, 113° 55′ E) (12.37) and **Lan Kok Tsui,** 2 miles NNW, there is a

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shallow bay with depths of less than 5 m (16 ft) extending ½ mile from its head.

Routes through Chi Shui-Men

12.38

A **deep-water route** with a controlling depth of 12·9 m leads from a position 1 mile E of Siu Mo To (12.34) to the jetty at Castle Peak Power Station (12.37a). The route is entered between CP1 and CP2 Light-buoys (22° 21′ N, 114° 00′ E), thence it is marked by light-buoys (port and starboard hand). The route is used by deep-draught bulk carriers carrying coal to Castle Peak Power Station; see also 12.38a.

12.38a

North Brothers traffic separation scheme extends between positions 1 mile NE of Cheung Sok (13.57) and 1 mile NW of Tai Mo To (12.34). It is for the use of dynamically supported craft (including jetfoils, hydrofoils, hovercraft and catamarans) only. CP1 and CP3 Light-buoys lie in the separation zone and the E-bound lane coincides with the E part of the deep-water route used by laden bulk carriers proceeding W.

The traffic separation scheme is not IMO-adopted: the rules in Appendix II apply.

12.38b

Tidal streams in Chi Shui-Men, are less strong than in the channels at its E end. The ebb tide, which is stronger and lasts longer than the W-going flood tide, probably does not exceed 2 knots.

Off-lying islands

12.39

Sha Chau (22° 21′ N, 113° 53′ E), 60 m high, with an islet in the form of a hillock, 51 m high, close N and connected to it by a drying bank, lies 2¼ miles SW of Tap Shek Kok. It lies near the SE end of **South-east Bank. Pak Chau,** 9 m high, with an above-water rock close NW of it, lies 8 cables NW of the N end of Sha Chau. **Dulley Rock,** with a depth of 0·9 m over it, lies 1½ cables W, and **White Rock,** 2·1 m high, stands 4 cables WNW, respectively of Pak Chau.

Lung Kwu Chau, a rocky islet, the N part 77 m high and the S part 69 m high, lies 1½ miles N of Sha Chau.

A **light** is exhibited from a square granite tower, 8 m in height, situated on the summit of Lung Kwu Chau.

Urmston Road, which is a safe and tolerably sheltered anchorage, lies between the mainland in the vicinity of Tap Shek Kok (12.37) and the islands described above. The best berth is with the summit of Neilingding Dao (12.40) open N of Lung Kwu Chau Light-structure and nearer the mainland than that island, in a depth of 20 m where smooth water has been found during an E gale.

Vessels should avoid anchoring in the approach to Castle Peak Power Station Jetty.

Urmston Road Anchorage 1 mile W of Lan Kok Tsui is a specified anchorage for vessels waiting to enter Hong Kong Harbour (see 13.4a).

The **pilot boarding place** for vessels approaching Hong Kong from NW is 1 mile SSW of Lan Kok Tsui.

Tidal streams in Urmston Road are strong.

Charts 1919, 341, 343

Directions. If bound for Urmston Road from S, from a position 2 miles NW of Kai Yet Kok (22° 13′ N, 113° 50′ E) (12.29), Tsing Shan (12.37) should be steered for bearing 041°, passing midway between the bank extending S from Sha Chau and Chek Lap Kok Bank (12.32) in a depth of not less than 5·5 m. When Red Point, the NE extremity of Chek Lap Kok bears 146°, course may be altered to NW, with Red Point astern on that bearing, anchoring as desired.

During the SW Monsoon vessels can proceed E, where more sheltered anchorage may be obtained N of The Brothers.

Vessel with local knowledge bound for Huangpu Gang from Urmston Road can make use of Fanshi Shuidao (12.48).

12.40

Neilingding Dao, which rises to **Jianfeng Shan** (22° 25′ N, 113° 48′ E), a conical peak 339 m high, lies in the central part of Zhujiang Kou 3½ miles NW of Lung Kwu Chau. The island has wooded slopes on its E part. There is a narrow sandy beach in **Shui Wan** on the S side of the W part of the island, where there is a custom station and a flagstaff.

Nan Shazui, a ledge with depths of less than 2 m over it, extends 2¼ miles S from **Dongjiao Zui,** the SE extremity of the island. **Bei Wan** and **Tung Wan** are two bays on the N side of the island, separated by a promontory, off which a ledge extends N for ½ mile, with depths of less than 2 m over it. **Tongluo Pai,** a rock which dries, lies close off the N end of **Jiaokeng Wan,** a sandy bay on the E side of the island.

Tidal streams S of Fanshi Qiantan (12.48) are irregular with under-currents. The ebb stream E of Neilingding Dao sets S but W of the island it sets SE.

Charts 341, 343

12.41

From Tai Yue Hoi Hap (12.24) the main channel through Zhujiang Kou passes W of Tai Yue Shan, thence NNW into Lingding Shuidao (12.48).

Mayou Shi (22° 31′·7 N, 113° 48′·0 E), a 6·2 m rock, lies in the channel 3 miles WNW of Bluff Point (12.29) and is marked by No 1 Light-buoy (port hand).

Thence the channel passing W of Neilingding Dao is marked by light-buoys which are moved as necessary to meet changes in the channel.

For continuation of the main channel see 12.51.

Charts 341, 343, 3026, 1555

General directions and tidal streams

12.42

For defined routes see 12.3.

There should be no difficulty in entering Zhujiang Kou during daylight, but vessels should not proceed N of Neilingding Dao (12.40) without local knowledge. If proceeding up Zhujiang pilotage is compulsory. See 12.2.

When making the land in thick weather, it may be noted that Jiapeng Liedao (13.5) and Dangan Liedao (13.6), excepting Dangan Dao, which is long and undulating, are detached, high and uneven, with depths of 35 m close-to, whereas the island between Dawanshan Dao (21° 57′ N, 113° 43′ E) and Shangchuan Dao 50 miles WSW are large and of regular appearance resembling a coast more than islands, with depths of only 20 m to 30 m at a considerable distance S of them.

12.43

Freshets out of Zhujiang, through Daxi Shuidao set almost constantly W from the S end of Dahengqin Dao (11.14) along the islands farther W, at a rate of 1 to 2 knots, particularly with strong E winds, and although at times, especially during the SW Monsoon period, there seems to be a surface stream setting E or into the estuary, the freshets underneath continue to run W. At times the freshets abate, and then weak tidal streams set E, but these are not of long duration.

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Between Macau Roadstead and Neilingding Dao the tidal streams frequently set in a different direction at the surface to that underneath. The ebb stream is stronger and continues longer than the flood; the freshets also run out below the surface when the flood tidal stream is running at the surface.

The streams amongst the islands lying SE of the estuary set in varying directions, according to the prevailing winds; a strong E wind generally produces a W current which the ebb tidal stream reduces in strength.

INNER PART OF ZHUJIANG KOU

Chart 343

Eastern side

12.44

Hau Hoi Wan on the E side of Zhujiang Kou is entered between Lan Kok Tsui (12.39) and **Mawan Xiajiao** (22° 28′ N, 113° 53′ E), the S extremity of a peninsula, 4 miles NNW. The bay is shallow, and for the most part has depths of less than 5 m. **Nan Shan,** which rises to an elevation of 335 m is the summit of the peninsula on the N side of the bay, situated 2 miles NNE of Mawan Xiajiao.

A reef, which dries 1·2 m (4 ft), lies 1 mile NE of a promontory 87 m high, situated 3 miles ENE of Mawan Xiajiao.

Sham Chun River enters Hau Hoi Wan at its NE end through an estuary 2 miles wide, the S entrance point of which is a promontory 67 m high. The river channels are marked by light-beacons.

Lights are exhibited, from white metal columns situated 3½ miles E and 6¾ miles ENE of Mawan Xiajiao. Lights are also exhibited from mooring dolphins situated 4¼ miles E and 3 miles SE of the same point.

A **submarine cable** is laid across Hau Hoi Wan from Shekou (12.45) to a position ¾ mile SW of the 67 m promontory. Light-buoys (special) are moored on the W part of the cable route.

12.45

Shekou Gang, a general cargo port and offshore oil support base, is situated 1¼ miles ENE of Mawan Xiajiao (22° 28′ N, 113° 53′ E). It is approached by a channel with depths of 5·8 m to 6·7 m leading NE and then N across the entrance to Hau Hoi Wan. Leading lights in line bearing 356½° lead along the final leg of the channel. The channel is marked by light-buoys. No 1A Light-buoy (starboard hand) is moored at the entrance to the channel 1¼ miles S of Mawan Xiajiao.

Another channel leads NNE to Shekou Gang. It is entered between Nos 1 and 2 Light-buoys (starboard and port hand) moored 1¼ miles S of Mawan Xiajiao and leading lights in line bearing 036¾° lead along the channel.

There are 14 berths for passenger and cargo vessels of up to 10 000 dwt. Further berths are planned (1987).

There is a hovercraft service to Hong Kong; the hovercraft channel leads from the elbow in the main channel NNE to the coast 1 mile NE of Shekou.

12.45a

Chiwan Gang, a port for general cargo vessels and offshore oil support, is situated between Mawan Xiajiao and Mawan Shangjiao 9 cables NW. A wharf is protected by a breakwater extending 5 cables SE from Mawan Shangjiao. A light is exhibited near the head of the breakwater. Leading lights in line bearing 355¼° lead along a short entrance channel, marked by buoys. The leading lights stand on a hill and are conspicuous. The front light is exhibited from a white square metal tower with a white triangle point up; the rear light is exhibited from a white concrete structure with a white triangle point down. No 1 Light-buoy (starboard hand) is moored 3½ cables SSE of the head of the breakwater.

There are six berths with depths alongside of 10 m to 14 m for vessels up to 20 000 dwt. A 40 ton gantry crane is available.

Two berths to acommodate bulk and general cargo vessels of 35 000 dwt were under construction in 1987.

A tidal stream of 2 knots sets across the harbour entrance. Berthing takes place at HW. Tugs are available.

Anchorages. The pilot anchorage for both Shekou Gang and Chiwan Gang is 2½ miles S of Mawan Xiajiao. It is reported (1985) to be liable to silting and depths may be 2 m less than charted.

Anchorages for large and small cargo vessels are SW of Mawan Xiajiao and for tankers W of the same point. Limits are shown on the chart. The holding ground is reported to be very good.

The **recommended approach** to Shekou Gang and Chiwan Gang is by Tung Pok Liu Hoi Hap (East Lamma Channel) (13.23), thence round Ma Wan (13.77) and through Chi Shui-Men (12.31) and Urmston Road (12.39).

12.45b

Between Mawan Shangjiao and **Huipeng Jiao** (22° 30′ N, 113° 52′ E), the NW extremity of the peninsula, the coast is moderately steep-to.

In 1987 the port of **Mawan** was under construction NNW of Chiwan: berths for a 35 000 dwt container vessel and a 20 000 dwt general cargo vessel were due for completion in 1988.

Dachan Wan, which is shallow, is entered between Huipeng Jiao and **Ping Zhou,** a point 4 miles NNW. A mud-bank which dries occupies most of the bay.

Off-lying islands

12.46

Xima Zhou (22° 30′ N, 113° 50′ E), 68 m high, 1¾ miles WNW of Huipeng Jiao, lies in the approach to Dachan Wan. **Dongma Zhou,** 48 m high, lies close SE of Xima Zhou: a **light** is exhibited from a white round brick structure on Dongma Zhou.

Dachan Dao, 116 m high, lies NE of Xima Zhou and is separated from it by a channel 3 cables wide. There is a signal station near the NW end of the island and a customs station on the NE side. A **light,** the charted position of which is approximate, is exhibited near the N extremity of Dachan Dao. Vessels should keep at least 150 m from the light-structure owing to the existence of below-water rocks.

Xiaochan Dao, 76 m high, lies 1 mile SW of Ping Zhou. A bank, with depths of less than 2 m over it, extends 1¼ miles NNW and nearly 2 miles SSE from Xiaochan Dao.

Xiya, 24 m high, lies 7 cables W of Xiaochan Dao. A **light** is exhibited from a white concrete post on Xiya.

The area within ½ mile of Xiya is a quarantine anchorage.

Charts 343, 344

12.47

Between Ping Zhou and **Chuanbi Jiao** (22° 45′ N, 113° 40′ E), the SW extremity of Chuanbi Dao, 15 miles NW, the coast is fringed by a drying mud-bank; the coastal bank, with depths of less than 5 m over it,

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extends up to 5 miles offshore, and its SW edge is steep-to. **Jiaoyi Sha,** near the N end of which is a drying patch, lies on the outer edge of the coastal bank 1½ to 5 miles SE of Chuanbi Jiao. A light-buoy (N cardinal), moored 1¾ miles SE of Chuanbi Jiao, marks the N end of Jiayi Sha. Another light-buoy (W cardinal) is moored near the S end of Jiaoyi Sha 6 miles SSE of Chuanbi Jiao.

Jiaoyi Wan, which is very shallow, lies E of Chuanbi Jiao. A creek, which separates Chuanbi Dao from the mainland, flows into the head of this bay.

Chart 343

12.48

Fanshi Qiantan, over which there is a least depth of 2 m, extends 8½ miles N from Neilingding Dao (12.40). **Fanshi Yu** (22° 30′ N, 113° 48′ E), a rock 17 m high, with **Bai Shi,** 8 m high, ¼ mile WNW of it, stands near the N end of this bank 4½ miles N of the summit of Neilingding Dao.

Fanshi Shuidao is the channel leading NW between Xima Zhou and Fanshi Qiantan. The fairway is narrow and unmarked with numerous shallow patches, with depths of 4·6 m to 5·5 m over them, in the channel. Fanshi Shuidao should not be used without local knowledge.

Tidal streams in Fanshi Shuidao run at a rate of 3 to 4 knots at springs, increasing during freshets.

Lingding Lanjiangsha, a bank with a least depth of 0·5 m over it, lies between 3 and 13 miles NNW of Neilingding Dao, and forms the E side of the main channel through the N part of Zhujiang Kou.

Anchorage. Vessels can lie securely in Zhujiang Kou, N of Lingding Lanjiansha during a typhoon.

Lingding Shuidao is the channel situated between Fanshi Qiantan and the banks on the W side of the estuary. See 12.51.

Charts 343, 344

Western side

12.49

Between the N end of Qi'ao Dao (22° 26′ N, 113° 39′ E) (12.28) and the S end of Dajiaotou Dao, 18 miles N, the NW portion of Zhujiang Kou is occupied by shallow banks extending in a general SE direction from the numerous islands which form the NW side. Between these banks lie the entrances to the channels and creeks leading to Hsi Chiang (11.12) and to the city of Guangzhou.

12.50

Longxue Dao (22° 42′ N, 113° 29′ E), an island 61 m high near its SW end, lies on the W side of the channel 3¼ miles SSW of Chuanbi Jiao (12.47). There is a small temple close to some trees on the SW end of Longxue Dao; this part of the island is covered with earthen vessels containing human bones.

Longxuelong Tan, which dries, extends 2 miles SE of the island.

A bank, which dries 0·6 m, extends ¾ mile E from Longxue Dao.

Jiaobei Zhou, 22 m high, lies on the NW side of this bank, ¼ NE of the N end of Longxue Dao.

Shanban Zhou, consisting of two islets ¼ mile apart, lies 1 mile NNE of Jiaobei Zhou. The NW islet is low and the SE islet has a rounded summit, 14 m high, resembling an overturned boat.

A **light** is exhibited from a white square tower standing on the summit of the SE islet.

Dong Pai, a reef which dries, lies 1¼ cables N of the SE islet and **Wanghua Pai,** a group of rocks, lies 4 SSW of the same islet. Detached reefs extend 2 cables NW of the NW islet.

12.51

The channel through the outer part of Zhujiang Kou is described in 12.41. From Neilingding Dao the channel follows Lingding Shuidao (12.48), passing W of Lingding Lanjiangsha (12.48) and E of Longxuelong Tan (12.50) into Chuanbi Shuidao (12.53a). It is marked by light-buoys (port and starboard hand).

The channel from the entrance to Zhujiang to Huangpu is described in 12.64.

ZHUJIANG

Charts 344, 346, 2562

12.52

Zhujiang (Pearl River) is entered at the N end of Zhujiang Kou by Chuanbi Shuidao, which lies between the SW side of Chuanbi Dao (22° 45′ N, 113° 40′ E) and Dajiao Zui, 2¼ miles W.

Pilotage is compulsory. See 12.2.

Guangzhou, formerly known as Canton (12.88), is reported to be available for vessels of 3000 dwt at berths alongside, and to vessels of 4000 dwt at moorings in the river. Ships of over 4000 dwt use Hangpu where there are depths up to 11·9 m at the wharves (12.65).

In 1979, it was reported that the river had been dredged to 8·5 m as far as Huangpuxingang (23° 03′ N, 113° 30′·5 E): thence to 6·1 m as far as Guangzhou.

During the NE Monsoon, in the winter months, about 0·3 m greater depth will be available on the night tide than on the day tide: during the SW Monsoon in the summer the reverse will be the case. During the SW Monsoon the level of the river is about 0·3 m higher than in the NE Monsoon.

Wind has a great effect on water level. A fresh SE wind increases the level by 0·6 m, and it is reported that a strong NW wind decreases the water level by a proportional amount.

There are tide-gauges at Nizhou Jiao (22° 54′ N, 113° 34′ E) (12.58) and Huangpu.

Chart 344

Chuanbi Jiao to Langlai Tou

12.53

Chuanbi Jiao (22° 45′ N, 113° 40′ E) at the SW extremity of Chuanbi Dao is the SE entrance point of Zhujiang.

Xiahui Pai, which dries and is fairly steep-to on its SW side, lies 6 cables NW of Chuanbi Jiao and 1½ cables offshore.

A light-buoy (S cardinal) marks a 6·1 m shoal 2 cables S of Xiahui Pai.

Sha Jiao, the W extremity of Chuanbi Dao, lies 11 cables NW of Chuanbi Jiao. There is a signal station 1½ cables E of the point and a jetty 1 cable N.

Shajiao No 1 Light-buoy (preferred channel to port) is moored on the N side of the entrance to Chuanbi He, 2½ cables NNW of Sha Jiao.

A jetty 260 m long capable of berthing bulk coal carriers of 39 000 dwt supplying a power station is situated at Sha Jiao.

12.53a

Anchorage. Numbered anchor berths are situated in **Chuanbi Shuidao,** the main channel in the entrance to Zhujiang, between positions 3½ miles SSE and 3½ miles NW of Chuanbi Jiao. Their positions are shown on the chart. They are used by vessels waiting to proceed up

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river and ship inspections are normally carried out there. The holding ground is good.

12.54

Eshan Jiao, 1½ miles N of Sha Jiao, is the N entrance point of Chuanbi He, which leads to Taiping, situated on the NE side of the creek 3½ miles N of Sha Jiao.

Yaniangxie Jiao (22° 48′ N, 113° 37′ E) lies 2 miles WNW of Eshan Jiao.

12.55

Abreast Yaniangxie Jiao, Zhujiang is divided by two islands into two channels. **Hu Men,** the main channel, passes E of these islands and **Puzhou Shuidao,** which is only used by junks, passes W of them.

Shanghengdang, the N island, lies 7 cables W of Yaniangxie Jiao. **Xiahengdang,** the S island, lies 4 cables SSE of Shanghengdang; the channel between is foul. Banks, with depths of less than 5 m over them, extend 1¼ cables NW from Shanghengdang and 1¾ miles SSE from Xiahengdang.

Jinsuo Pai, which is foul for a short distance off its NW side, lies 2 cables ESE of Shanghengdang.

A **light** is exhibited from a white square brick tower, 11 m in height, standing on Jinsuo Pai.

12.56

On the W side of Zhujiang, **Dajiao Zui** (22° 46′ N, 113° 57′ E), on which there is a fort, is the SE extremity of **Dajiaotou Dao.** A bank which dries 0·3 m extends 1¼ miles from the SE end of that island. **Wu Zhou** lies on this bank ¾ mile S of Dajiao Zui. **Puzhou Jiao** lies 7 cables NNW of Dajiao Zui.

Langlai Tou (22° 49′ N, 113° 35′ E) 3¾ miles NNW of Dajiao Zui is the NE extremity of Dajiaotou Dao.

Humen Qiantan, over which there is a least depth of 1·4 m, lies between ½ and 1½ miles SE of Langlai Tou.

Xianglu Jiao, a pinnacle with a depth of 3·7 m over it, lies 8 cables E of Langlai Tou and is situated on the W side of a bank with depths of less than 10 m over it which extends 3 cables NW and 7½ cables SE from the pinnacle.

A depth of 7·1 m lies 4½ cables ESE of Xianglu Jiao. Humen No 1 Light-buoy (port hand) is moored 5 cables E of Xianglu Jiao.

Langlai Tou to Lianhuashan Shuidao

12.57

A creek which is only suitable for small junks is entered between **Xianwu Jiao** (22° 49′ N, 113° 37′ E) the S extremity of **Xianwu Dao** and the coast of Yaniangxie Dao (12.54), 2½ cables SSE.

12.58

Dongwan Jiang is entered S of **Nizhou Jiao** (22° 54′ N, 113° 34′ E) the S extremity of Ni Zhou.

Leading lights are exhibited, the rear light 5½ cables N of Nizhou Jiao and the front light 3½ cables S of the rear light.

Leading lights are exhibited, the rear light from the same structure as the rear light above and the front light 2 cables NW of the rear light.

A tide-gauge is situated 2½ cables N of Nizhou Jiao.

12.59

Dahu Dao, 176 m high, lies on the SW side of the main channel with its SE extremity ½ mile NE of Langlai Tou (12.56). The N end of Dahu Dao consists of a remarkable mass of rounded granite with precipitous sides.

A conspicuous tree stands near the SE end of Dahu Dao.

Hudan Jiao, with a depth of 4·7 m over it, lies 2 cables NE of the N extremity of Dahu Dao. The W extremity of Shanghengdang bearing 149°, or the whole of that island open NE of Dahu Dao, leads NE of Hudan Jiao.

12.60

On the W side of Zhujiang, **Gutzlaff Channel** is entered between the N end of Dajiaotou Dao and the S side of Xiaohu Dao; Dahu Dao lies in the approach to this channel. **Xiaohu Jiao** (22° 50′ N, 113° 34′ E), which is 4 m high, lies 1 cable off the E extremity of Xiaohu Dao.

Shazi Dao lies N of Xiaohu Dao and is separated from it by a narrow, shallow channel.

Humen No 2 Light-buoy (port hand) is moored 6 cables NNE of Shazi Jiao, the SE extremity of Shazi Dao.

A channel is entered from SE between **Batangwei Shazui,** the SE extremity of **Da Sha,** an island situated 4 miles NNW of Langlai Tou, and a point on the NE side of Shazi Dao.

12.61

Above Dahu Dao (12.59) the banks on both sides of the river become more clearly defined and assume the character of alluvial flats for many miles.

Nizhou Qiantan, which dries, lies 8 cables NE of Batangwei Shazui. A bank with less than 5 m over it extends ¾ mile S and 1½ miles NNW of Nizhou Qiantan.

An area in which anchoring and fishing are prohibited extends across the river ½ mile N of Nizhou Qiantan.

Chart 346

12.62

On the W side of the river, N of **Zhouzi Tou** (22° 54′·5 N, 113° 33′ E) as far as **Ruisha Jiao** (22° 59′ N, 113° 31′ E) the N extremity of Da Sha, a bank with depths of less than 5 m over it, extends from 1 to 5 cables offshore.

A bank with less than 5 m over it runs parallel to and 3½ cables off the E bank of the river between 2 and 3¾ miles NNW of Nizhou Jiao. **Datu Jiao,** with 4 m over it, lies at the N end of this bank.

Lianhuashan Shuidao

12.63

Lianhuashan Shuidao is the reach between the SW end of Sixiangliandawei (22° 59′ N, 113° 32′ E) and the NE point of Da Sha. In this reach **Lianhuashan Lanjiangsha,** a bar with general depths of less than 5 m and an area which dries, extends almost completely across the river. Numerous obstructions exist on Lianhuashan Lanjiangsha.

Lianhuashan Hangdao, the main channel through Lianhuashan Shuidao, lies W of Lianhuashan Lanjiangsha, passing close to the W bank of the river at Ruisha Jiao.

The N entrance to **Fuliangang Shuidao** lies between Ruisha Jiao and a point 1 mile N.

Charts 344, 346

Channel through Zhujiang

12.64

At the entrance to Zhujiang the channel follows Chuanbi Shuidao and then Hu Men, passing NE of Jinsuo Pai (12.55) and Humen No 1 Light-buoy. The channel continues through Dahu Shuidao passing NE of Dahu Dao and E of Humen No 2 Light-buoy. At the end of this reach leading lights at Nizhou Tou (12.58) lead into a channel 150 m wide. This channel runs close to the E side of the river on an initial course of 009¼° with Nizhou Tou Leading Lights in line, then on a course of 348° until a second pair of leading lights on Nizhou Tou come into line on a bearing of 138¾° astern. Humen No 3

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Light-buoy (port hand) and Humen No 4 Light-buoy (starboard hand) mark the limits of the channel in this reach. The channel continues NNW on a course of 336¼° passing between banks and in this reach the least depth is 9·0 m. Leading lights, situated nearly 1 mile N of Ruisha Jiao (12.62), in line bearing 325¼° lead across to the W side of the river where the course of the channel is 348¼° through Lianhuashan Hangdao (12.63), which is marked by light-buoys (port and starboard hand), and then 003½° into Chisha Shuidao (12.66).

Chart 346

Lianhuashan Shuidao to Dahao Zhou

12.65

Dong Jiang, the principal entrance to Tung Kiang (East River) (12.96), is entered between a point on the E side of Zhujiang (23° 02′ N, 113° 31′ E), 3½ miles N of Ruisha Jiao, and the S extremity of Yudonglianwei. There is a wharf on the S entrance point and the wharves at Huangpuxingang (12.70) extend NNW from the N entrance point.

12.66

Chisha Shuidao extends about 3 miles up river from the entrance to Dong Jiang as far as Dahao Zhou: it is clear of dangers. There are several mooring buoys and anchor berths in Chisha Shuidao.

12.67

Dahao Zhou (23° 05′ N, 113° 29′ E) is low and flat: it is separated from the NE bank of the river by **Boluomiao Shuidao,** a shallow channel 2 cables wide. There is a dangerous cargo handling area SSW of Dahao Zhou.

Abreast the SW side of Dahao Zhou the river divides into Tiezhuang Shuidao (12.79), the S channel, and Dahaozhou Shuidao (12.68) which leads NW between Dahao Zhou and Diancao Zhou (12.69) into Huangpu Shuidao.

Dahaozhou Shuidao

12.68

Huangpu No 1 Light-buoy (23° 04′·5 N, 113° 28′·4 E) (preferred channel to starboard), on the SW side of the entrance to **Dahaozhou Shuidao,** marks the SE extremity of **Dahao Lanjiangsha,** a shoal area NE of Diancao Zhou (12.69), and No 3 Light-buoy (port hand) marks the NE extremity. No 2 Light-buoy (starboard hand) marks a spit extending NW from Dahao Zhou. Leading lights situated on the N bank of the river 7 cables NW of the NW extremity Dahao Zhou in line bearing 325° lead through Dahaozhou Shuidao in a least depth of 7·8 m. Leading lights on the NW extremityof Dahao Zhou in line 132° astern and reciprocal leading lights on the N bank nearly 1 mile NW, in line bearing 312° ahead, lead out of Dahaozhou Shuidao into Huangpu Shuidao.

Huangpu Shuidao

12.69

Huangpu Shuidao about ¼ mile wide leads W for about 2½ miles from the NW end of Dahaozhou Shuidao. The wharves of Huangpu Gang are on the N side.

Shayu Tan (23° 05′·3 N, 113° 27′·6 E) is a shoal with a least depth of 3·4 m over it at the E end of Huangpu Shuidao. No 5 Light-buoy (port hand) is moored N of Shayu Tan and No 4 Light-buoy (starboad hand) W of it. The main channel is N of the shoal.

An overhead **power cable** crosses Huangpu Shuidao between the N bank of the river and Diancao Zhou (below) and continues S across Tiezhuang Shuidao (12.79). Vessels with mast or superstructure 60 m or more high are not permitted to pass below the cable.

An area in which anchoring is prohibited lies 1 cable W of Shayu Tan.

Diancao Zhou is the E of a string of low islands extending W to Chang Zhou (12.72). **Shatu Jiang** separates **Hongsheng Sha,** the W island, from Chang Zhou: other channels between the islands are being reclaimed.

Yuzhu Qiantan, a drying bank lying N of the string of islands, forms the S side of Huangpu Shuidao.

HUANGPU GANG

Chart 346

12.70

Huangpu Gang is the deep water port of Guangzhou (12.88). It is also the largest port in S China and one of the most important ports in the whole of China for foreign trade. It consists of the old port area (23° 06′ N, 113° 27′ E) near the town of Huangpu and the new port at **Huangpuxingang** between 2½ miles and 4½ miles downstream.

Vessels of 25 000 dwt 180 m long and drawing 9 m can enter the port at HW. Larger vessels can be lightened at anchorage before entering.

In 1985 1625 ocean-going vessels with 17¾ million tons of cargo were handled at Huangpu Gang.

Berths at Huangpu

12.70a

At the old port on the N side of Huangpu Shuidao there are 9 berths capable of accommodating vessels of up to 10 000 dwt and one for vessels of 5000 dwt. There is also a passenger terminal. Depths alongside are about 7 m.

There are mooring buoys and anchor berths at which cargo is worked in Huangpu Shuidao opposite the berths and in Tiezhuang Shuidao (12.79).

There are naval and dockyard establishments on the N side of Chang Zhou (12.72) and a shipyard on the N side of Hongsheng Sha (12.69).

Berths at Huangpuxingang

12.70b

The port area extends from the SE and of Dahao Zhou (12.67) 2 miles SE to the entrance to Dong Jiang.

The oil terminal (23° 04′·1 N, 113° 29′·6 E) can accommodate two tankers of up to 24 000 dwt.

Xiji coal terminal is situated ½ mile SE of the oil terminal: it has two berths for vessels of up to 35 000 dwt.

The general cargo area is between ½ mile and 1½ miles SE of Xiji terminal. At the N end there is a bulk grain berth at which there are conspicuous silos. To the S of the grain berth there are a bulk fertilizer berth, general cargo berths and at the S end of the area a container terminal at which there are two berths served by three container cranes.

There are several mooring buoys and anchor berths off the alongside berths.

12.70c

Development. Construction is due to start in 1988 of a new wharf at **Xinsha** S of the entrance to Dong Jiang (12.65). Five berths for coal, ore, fertilizers and general cargo are planned for completion in 1992 and a further five berths in 1995.

12.71

Facilities. The wharves at Huangpu and Huangpuxingang are connected to the railway system.

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There are cranes with 3 tons to 10 tons capacity and floating cranes able to lift from 30 tons to 250 tons.

There are many tugs and lighters.

There is a hospital.

Supplies. Fresh water and provisions are available.

Fuel is available.

Signal station. There is a signal station in the vicinity of the coal wharf (23° 03′·8 N, 113° 29′·9 E).

CHANNELS TO GUANGZHOU

Chart 3646

12.72

Huangpu (Whampoa) town (23° 05′ N, 113° 25′ E) is situated on the N side of **Chang Zhou (Danes Island).** There are numerous landing stages, but it is reported that these are in poor state of repair.

The W part of Chang Zhou is hilly, and a flagstaff stands on **Shengqi Shan (Sheng-chi Shan),** 80 m high, S of the town. There is a jetty situated at the NE end of Chang Zhou, with a custom house and storm signal station which displays signals similar to those shown at Hong Kong (13.110), 1 cable W of it. Military and naval establishments are situated close to the NE end of Chang Zhou.

A quay and a graving dock are situated 3½ cables NE of **Chia-ting Chiao (Jardine Point),** the W extremity of Chang Zhou, and 3½ cables ENE of the graving dock are two slipways reported to be suitable for craft up to 2000 tons or more. A white brick chimney, 46 m in height, stands ½ cable E of the graving dock.

A concrete dam, situated close S of Chia-ting Chiao, extends SW across the N entrance to **Sheng-ching Ho** which separates Chang Zhou from **Sheng-ching Chou (French Island).**

Hsin-chou Chiao (Sulphur Point) (23° 05′ N, 113° 24′ E), the E extremity of **Huang-pu Tao,** is situated on the NW side of **Chang-chou Chih-tuan (English Reach).** The town of **Hsin-chou** extends W from Hsin-chou Chiao and is connected by road with Guangzhou.

12.73

Anchorages. The main anchorage is in Chang-chou Chih-tuan NW of the NE end of Chang Zhou in depths of 6 to 15 m (20 to 49 ft), soft mud; it is safe with a moderate tidal stream but there is not room for more than one large vessel.

Upper part of Huangpu Shuidao

12.74

The entrance to the upper part of Huangpu Shuidao lies between Hsin-chou Chiao (23° 05′ N, 113° 24′ E) (12.72) and a point on the N bank of the river 1 mile ENE. The SE ends of **Pei-tou Sha (Pedder Island)** and **Emei Sha (Pei Sha)** lie in the entrance. Both Pei-tou Sha and **Lu Chou (Green Island)** are cultivated; Lo Chou has small trees on it and is more prominent than Pei-tou Sha.

A light-buoy, moored 2½ cables ENE of Hsin-Chou Chiao marks the entrance to the navigable channel which passes SW of Pei-tou Sha and thence through Pei-ti-Ho (Junk Creek) between the N part of Emei Sha and Lu Chou. There are depths of 2·1 to 7·0 m (7 to 23 ft) in this channel, but it should not be used without local knowledge as the depths are liable to change. A pinnacle rock, with a depth of 0·6 m (2 ft) over it, lies in mid-channel 1 cable NW of Pei-tou Sha.

Han-kou Shih (Hankow Rock), with a depth of 2·7 m (9 ft) over it, lies 1 cable off **P'a-chou,** a town on the N side of Huang-pu Tao, 1 mile W of the NW end of Emei Sha. Close N of Han-kou Shih is a narrow shoal, 6 cables in extent with a least depth of 0·9 m (3 ft) over it. There are usually indications of this shoal which, at low water, are very marked.

Chart 3647

12.75

Huang-pu Barrier, consisting of wooden piles and sunken junks, extends almost completely across the river from the N shore close E of Hsin Chou (Hai-sam-sha) (23° 07′ N, 113° 19′ E). S of the barrier there is a channel, marked by light-buoys and 120 m wide with a least depth of 2·1 m (7 ft) in the fairway.

Caution is required when passing Huang-pu Barrier, if the tidal stream is strong, in which case a vessel should hug the S bank at the entrance.

12.76

Spare.

12.77

Tien-tzu Wharf, large T-headed, extends towards the channel from a position close within the E limits of Guangzhou Harbour 2 cables SW of a conspicuous building which stands on the SW part of **Ta-sha-tou.** Numerous other alongside berths and mooring buoys in mid-channel exist W of this wharf as far as **Hai-chu Bridge** which spans the river 8½ cables farther W; this bridge has a vertical clearance of only 8 m at high water and obstructs vessels reaching the main port of Guangzhou Harbour from Huangpu Shuidao.

12.78

Spare.

Chart 346

Tiezhuang Shuidao to Nan-tang Chih-tuan

12.79

Tiezhuang Shuidao is entered between the SE extremity of Diancao Zhou (23° 05′ N, 113° 28′ E) (12.69) and the SW side of the main river.

Hongsheng Jiao (23° 04′·8 N, 113° 26′·4 E), with a depth of 5·2 m over it, lies at the W end of Tiezhuang Shuidao. A light-buoy (port hand) marks shoal water on the S side of Tiezhuang Shuidao 1½ cables ESE of Hongsheng Jiao.

Gongyi Jiao, with a depth of 3·4 m over it, and **New Nanxing Jiao,** with a depth of 2 m over it, lie 5 cables and 8 cables respectively WSW of **Dong Zui,** the SE extremity of Chang Zhou. New Nanxing Jiao is marked by a light-buoy (starboard hand): the eddies round the rock can always be seen.

Charts 3646, 346

12.80

Sheng-ching Ho (French River) is entered at its SE end between **Li-pen Chiao,** the S extremity of Chang Zhou, and **Pu-yu Chiao (Calliope Point),** the NE extremity of **Sheng-ching Chou (French Island)** (12.72). **Pao-t'a Chou (Powder Island)** lies in the entrance between these two points. Sheng-Ching Ho has irregular depths, varying from 0·3 to 12·2 m (1 to 40 ft) and is blocked at its NW end by a dam (12.72).

A drying bank extends a short distance NE from Pu-yu Chiao; fishing stakes, extending into mid-channel of the main river, are established off this bank every winter.

12.81

Xinza Shuidao (Kellet Reach) is entered S of the entrance to Sheng-ching Ho. Anchor berths marked by beacons on the E shore are situated in the N part of the reach.

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Chart 3646

Hsin-tsao Chiao (Larkins Point) (23° 02′ N, 113° 24′ E), made prominent by earth cliffs 12 m (40 ft) high, lies on the SE bank of the river at the S end of **Xinza Shuidao** 1¾ miles SSW of Pu-yu Chiao. **Chuang Shih (Junk Rock)** with a depth of less than 2 m (6 ft) over it, lies 1¾ cables NNE of Hsin-tsao Chiao and is marked by a light-buoy on its N side.

Close S of Hsin-tsao Chiao is a power station with a chemical works close S of it, and a pylon which supports an **overhead cable** running to another pylon on the opposite shore 3¾ cables NW; a small basin is situated in front of the power station. Another cable spans the river 1 mile NNE of Hsin-tsao Chiao to **Ta-shih-tou,** a town on the W bank.

Pai-ni Chiao (Bremer Point), the S extremity of Sheng-ching Chou, lies 1 mile WSW of Hsin-Tsao Chiao.

Hai-hsin-kang (High Island), 37 m (121 ft) high, lies in mid-river, 3 cables W of Pai-ni Chiao. A spit, parts of which dry, extends ½ mile ESE from Hai-hsin-kang.

A **light-beacon** (white metal column) stands on the N extremity of Hai-hsin-kang (23° 02′ N, 113° 23′ E).

Nan-ting Shih-pai (Comus Rock), awash, lies 1¼ cables E of Hai-hsin-kang and a short distance off the N bank of the river.

A **light-beacon** (red pole; spherical topmark) stands on Nan-ting Shih-pai.

The channel passes N of the spit extending ½ mile ESE from Hai-hsin-kang and between that island and Nan-ting Shih-pai.

12.82

Nan-ting Chih-tuan (Brown Reach) runs between Hai-hsin-kang and **Tung Chiao (Mann Point)** the E extremity of **Yuan-kang-sha,** a low flat island lying in mid-river 1¼ miles W.

Fan-shui Tou (Fenshuitau) Light-beacon (red dolphin; red disc topmark) stands on the N bank of the river 1¼ cables N of Tung Chiao.

Chart 3647

12.83

The main channel leads N of Yuan-kang-sha and turns N, 6 cables NW of Tung Chiao, to enter **Nan-tang Chih-tuan (Li-chiao Ho)** at its E end, through **Sheng-ching Men,** the narrow passage between **Tung-tsun-tsui,** the W extremity of Sheng-ching Chou, and **Tsao-tou-sha-wei,** the E extremity of **Nan-tang Chou (Haddington Island),** 1 cable SW. A light-buoy is moored close W of Ting-tsun-tsui; its charted position is approximate.

In 1966, there was reported to be a channel, dredged to a depth of 6·1 m, through Sheng-ching Men. Leading lights on Yuan-kang-sha, in line bearing 160°, mark this channel.

Charts 3646, 3647

Minor channels

12.84

Kuan-chou Kan-tao (Elliot Passage) leads NE from Sheng-ching Men and passes between the NW coast of Sheng-ching Chou and the E sides of **Ho-nan Chou** and **Li-chiao Chou (Actaeon Island),** to join Chang-chou Chih-tuan (12.72). The channel is under 1 cable wide at its narrowest part and has a least depth of 4·0 m in the fairway; it is unmarked and vessels proceeding between Guangzhou and Huangpu do so via the main channel S of Chang Zhou and Sheng-ching Chou.

Chart 3647

12.85

Yuan-kang Kan-lu and **Yuan-kang Chih-tuan (Senhouse Reach),** passing N and S of Yuan-kang-sha, respectively, merge together at **Hsi-Chiao (Duff Point)** (23° 02′ N, 113° 20′ E), the W extremity of that island, and continue W as **Nan Chih-tuan** for 3½ miles where it is joined by **Fu-shan Chih-liu (Fatshan Branch)** from WSW. Nan Chih-tuan turns N at this junction, passing between **Pai-he-tun Tou (Parker Point),** the W extremity of **Lo-ma Chou (Lo-ma-chan)** and **Szu-chiu Chiao (Tai-me Point),** the E extremity of **Ta-wang (Marines Island)** to rejoin the main channel to Guangzhou S of Hsi-yu Chou (12.87).

A **light-beacon** (red pole; circular topmark) stands on the edge of a reef extending ½ cable W from Pai-he-tun Tou. A rock, with a depth of less than 2 m (6 ft) over it, lies in mid-channel 1½ cables NW of the light-beacon; it is marked on its E side by a buoy. There is also a **light-beacon** on Szu-chiu Chiao.

Except for a **beacon** on the S side of the river 2½ miles W of Hsi Chiao, where extensive shoaling has been reported, the channel is unmarked.

Nan-tang Chih-tuan to Guangzhou

12.86

Li-chiao Barrier (23° 03′ N, 113° 19′ E), situated 1½ miles NW of Ting-tsun-tsui, extends across Nan-tang Chih-tuan from **Pa-pei-tsui (Cha-pei-tsui),** the W extremity of **Pai-shun Chou (Bethune Island),** to **Nan-tang Chiao (Washington Point)** 3¾ cables S. The channel through the barrier is 50 m wide and in 1955 had a least depth of 1·2 m (4 ft); it is marked by four light-buoys.

In 1966, dredging was in progress in a narrow channel between Sheng-ching Men (12.83) and the channel through Li-chiao Barrier. This channel was marked by light-buoys.

A **light-beacon** (red) stands on the S side of Pai-shun Chou, 3¾ miles ESE of Pa-pei-tsui.

A **light-beacon** (white), whose charted position is approximate, stands near the E entrance point of a narrow creek on the N side of Nan-tang Chou 3 cables W of Li-chiao Barrier.

12.87

Chang Chou (Long Island) is situated towards the S side of the river ½ mile W of Li-chiao Barrier. A light-buoy is moored close to the W extremity of Chang Chou. Another light-buoy is moored in the channel 1¼ miles WNW of Chang Chou.

The deep-water channel lies between Chang Chou and Nan-tang Chou, ½ cable S, and passes N of the light-buoy moored 1¼ miles farther WNW.

Hsi-yo Chou (Sepoy Island) (23° 04′ N, 113° 16′ E) lies in mid-channel at the W end of Nan-tang Chih-tuan.

The deep-water channel passes S of Hsi-yu Chou where it joins Nan Chih-tuan from S, and continues NW for 1¼ miles to **Ma-kou Pao-tai (Macao Fort)** (23° 04′ N, 113° 15′ E) which is situated on an island, 21 m high, at the S limit of the harbour of Guangzhou and on the W side of the river. A ruined fort stands on the E side of the river 3 cables E of Ma-kou Pao-tai.

A **overhead cable,** with a vertical clearance of 26 m, spans the river in a NE direction passing over the S end of the island on which Ma-kou Pao-tai stands.

A **tide-gauge** is situated on the E bank abreast Ma-kou Pao-tai. See 12.52.

Tidal streams. Abreast Ma-kou Pai-tao the ebb stream attains a rate of 3 to 4 knots at times.

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Guangzhou Gang

12.88

Guangzhou Gang comprises the NW part of Nan Chih-tuan between Ma-kou Pao-tai and Ho-nan-chou Tsui (23° 06′ N, 113° 14′ E), the NW extremity of Ho-nan Chou; Hsi Chih-tuan, which extends NW for a distance of 1¾ miles from abreast Ho-nan-chou Tsui, and the W end of Huangpu Shuidao between the same point and the bridge (12.77) which spans the river 1¼ miles ENE.

In 1968, a vessel with a draught of not more than 5·9 m could proceed to the harbour. Considerable dredging has been done at the bars and within the port area.

In 1985 it was reported that vessels drawing up to 5 m could berth in the harbour and those drawing up to 6 m could berth in midstream.

North-west part of Nan-Chih-tuan

12.89

On both sides of Nan Chih-tuan between Ma-kou Pao-tai and Ho-nan-chou Tsui, 2 miles NNW, there are wharves, and numerous mooring buoys are situated on the edge of the bank extending from the SW side.

Ta-wang Pao-tai (Macao Rock), two heads with a depth of 2·4 m (8 ft) over them, lies 1 cable NNE of Ma-kou Pao-tai; the E head is marked by a light-buoy. **Heng-sheng Shih (Haeshin Rock),** with a depth of 2·7 m (9 ft) over it, lies ¾ cable NE of Ta-wang Pao-tai and is marked by another light-buoy. Vessels must pass between these two light-buoys.

Pai-hsien-ke Shih (Pakhin-hok Yen), with a depth of 1·8 m (6 ft) over it, lies 1 mile N of Ma-kou Pao-tai and less than ½ cable from the E side of the harbour; it is marked on its SW side by a light-buoy.

Sha-yung Shih (Sha-chung Yen), with a least depth of 3·0 m (10 ft) over it, lies 1 mile NNW of Ma-kou Pao-tai and ¼ cable off the W side of the harbour; it is marked by a light-buoy.

Feng-huang-kang Shih (Fenghuang Chiao) are two rocks close together, with a least depth of 0.3 m (1 ft) over them, lying close off the E bank of the river ½ mile SSE of Ho-nan-chou Tsui; they are marked on their SW side by a light-buoy.

Ho-nan-chou Tsui (23° 06′ N, 113° 14′ E) is the NW extremity of a reclaimed area at the NW end of Ho-nan Chou which forms the E side of the harbour. A shoal, with a depth of 3·0 m (10 ft) over it, lies ¾ cable WSW of Ho-nan-chou Tsui.

A **light** is exhibited from a red metal framework tower on Ho-nan-chou Tsui.

Western end of Huangpu Shuidao

12.90

Ta-yung K'ou or **Front Reach,** the W end of Huangpu Shuidao, extends ENE along the N side of Ho-nan Chou from Ho-nan-chou Tsui to the bridge connecting that island with the mainland N (12.77). A dangerous shallow area, marked by light-buoys, lies in the reach 6½ cables ENE of Ho-nan-chou Tsui. A sea wall, behind which there is reclaimed land, extends the length of the SE side of the reach.

A tower and the customs signal station are situated on the S side of the harbour 2 cables E of Ho-nan-chou Tsui.

Hsi Chih-tuan

12.91

Hsi Chih-tuan, the reach extending 1¾ miles NW from abreast Ho-nan-chou Tsui to the W harbour limit, has depths of less than 3·7 m (12 ft) extending 1¼ cables from the SW bank.

Hua-ti Shih, with a depth of 2·4 m (8 ft) over it, lies 3¼ cables WNW of Ho-nan-chou Tsui, and ¾ cable from the SW bank of the river; it is marked on its NE side by a light-buoy. **Heng-chi Shih** with a depth of 3·7 m (12 ft) over it and marked by a light-buoy on its E side, lies 1 cable NW of Hua-ti Shih.

Shih-wei-tang Shih, with a depth of 3·0 m (10 ft) and marked on its NE side by a light-buoy, lies in mid-channel ¾ mile NW of Ho-nan-chou Tsui.

Huang-sha Shih, awash with two rocks close E of it, lies in the middle of the river 3 cables NW of Shih-wei-tang Shih; these rocks are marked on their NE side by a light-buoy. A rocky patch, with a depth of 1·2 m (4 ft) on its SE edge, lies ½ cable SW of Huang-sha Shih.

12.92

Anchorages. Vessels can anchor anywhere within the harbour limits except abreast Ho-nan-chou Tsui. If anchoring between Ma-kou Pao-tai and Ho-nan-chou Tsui vessels must keep as close to the E shore as possible. There are numerous mooring buoys off Shamein and NW of Ho-nan-chou Tsui. On arrival vessels are boarded by a Berthing Officer who will direct them to proper berths assigned to them under the direction of the Harbour Master.

12.93

Guangzhou, formerly known as **Canton,** is the capital of that province, and stands on the N bank of Zhujiang. Guangzhou has a population of over 1¾ million.

Shamien, an island, separated from the mainland by a canal crossed by two bridges, lies on the N side of the harbour N of Ho-nan-chou Tsui. A water-tower situated on the N side of Shamien 3½ cables N of Ho-nan-chou Tsui is conspicuous.

A **tidal gauge** is situated on the T-headed pier 2 cables N of Ho-nan-chou Tsui.

12.94

Berths. Numerous wharves and T-headed piers line the river banks within the harbour limits and have depths of 2·4 to 8·2 m (8 to 27 ft) alongside them. The port, with newly constructed warehouses and repaired wharves, was opened to foreign shipping in 1964. The principal piers used by coastal trading vessels have 3·0 to 3·7 m (10 to 12 ft) alongside. Huang-sha Railway Wharf, on the N side of Hsi Chih-tuan has been lengthened and dredged, and can accommodate vessels of 3000 tons.

Facilities. Repairs of all types can be undertaken by the Tung Lang Shipyard, reported to be the largest yard in S China, situated along the W side of Nan Chih-tuan. The yard has two dry docks, the largest having an overall length of 130 m and reported in 1971 to take vessels of 10 000 tons. There are slipways for two 5000 ton and one 10 000 ton vessels S of the dry docks. The shipyard has cranes of 15 to 100 ton capacity.

Lighters are available for working cargo.

There is a hospital service in Guangzhou.

Deratting can be carried out. See 1.92.

Supplies. Provisions and small quantities of fuel oil can be obtained. Deck and engine stores are limited.

Fresh water, which is scarce, is supplied by hydrant at most wharves, and by sampan to vessels at the anchorage. Drinking water must be boiled.

Communications. Small vessels maintain regular sea communication with Hong Kong, Macau, and Huangpu, and also with places up Pei Chiang and Tung Chiang.

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Guangzhou is connected by railway with Kowloon, San-shui, and thence to Beijing.

There is a coast radio station.

Storm and other signals. Storm signals, similar to those displayed at Hong Kong (13.110) are shown both by day and by night, at the yardarm of the custom house 2 cables E of Ho-nan-chou Tsui (12.89) and also from a mast on top of the examination shed 2¾ cables NNE.

CHANNELS BETWEEN HSI CHIANG AND ZHUJIANG

Chart 2562

12.95

In the delta SE of San-shui (23° 10′ N, 112° 50′ E) (11.12), lying between the lower reaches of Hsi Chiang and its estuary on the NE side, there is a large tract of alluvial land which is intersected by a network of channels and creeks. The channels leading into the delta from the head of Zhujiang Kou and the W side of Zhujiang are available for small craft with local knowledge proceeding to Guangzhou (12.93) and various minor ports in the delta. These channels were described in detail in former editions of this volume, but since no recent information about them is held, they are no longer described.

TUNG CHIANG

Chart 2562

12.96

Tung Chiang or **East River** rises in the province of Kiangsi. It flows S to the border of Kwangtung, from which it runs SSW and then W to **Shih-lung (Sheklung)** (23° 07′ N, 113° 50′ E). An extensive delta is formed W and SW of Shih-lung, through which numerous channels flow into the E side of Zhujiang. Tung Chiang has a total length of about 250 miles. It is mostly broad and shallow, much obstructed by mud-banks, with a strong current. The channels leading into the delta from Zhujiang were described in detail in former editions of this volume, but since no recent information about them is held, they are no longer described.

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CHAPTER 13

APPROACHES TO HONG KONG—HONG KONG HARBOUR

APPROACHES TO HONG KONG

Chart 3026

13.1

Between Xiaoputai (Hsiao-pu-tai) (22° 02′ N, 113° 38′ E) (12.6) and Tai Long Tsui (22° 25′ N, 114° 24′ E) (14.16) the W entrance point of Tai Pang Wan 47 miles NE, a large number of islands and dangers lie in the approaches to Hong Kong.

The approaches to Hong Kong from S, W and NW lie entirely within the territorial waters claimed by the People's Republic of China, and in order to minimise the risk of international incidents, it is recommended that vessels approaching and leaving Hong Kong should do so only from and to the SE keeping at all times at least 5 miles S and E from the coasts of Jiapeng Liedao and Dangan Liedao.

13.2

The **territorial waters** of the Colony of Hong Kong may nominally be taken to extend to 3 miles, or median lines, but no precise definition has been agreed with China. In sea areas adjacent to the territory and islands of China, it is advisable to keep well within Hong Kong waters unless clearance has been obtained for navigation within Chinese waters. See *Annual Summary of Notices to Mariners* and subsequent notices for the latest information on the extent of territorial waters claimed.

13.2a

Hong Kong waters are defined as an area bounded by lines joining the following positions:

(*a*) 22° 27′ N, 114° 30′ E (Dapeng Jiao) (14.36)
(*b*) 22° 09′ N, 114° 30′ E
(*c*) 22° 09′ N, 113° 54′·8 E
(*d*) 22° 11′·8 N, 113° 50′·6 E (SW extremity of Tai Yue Shan)
(*e*) 22° 16′ N, 113° 52′ E
(*f*) 22° 24′·4 N, 113° 52′ E
(*g*) 22° 24′·4 N, 113° 54′ E (Lan Kok Tsui) (12.37b).

Designated routes

13.3

South and south-west approach. From the S or SW it is recommended to keep at least 5 miles SE of Jiapeng Liedao (13.5) and Dangan Liedao (13.6); thence pass round the NE end of Dangan Dao keeping 5 miles off; thence pass within 3 miles S of Po Toi Island (13.37); thence proceed NW into Tung Pok Liu Hoi Hap (East Lamma Channel).

West approach is through Tai Yue Hoi Hap (Lantau Channel) (12.24) ENE into Sai Pok Liu Hoi Hap (West Lamma Channel).

North-west approach is through Urmston Road (12.39) and Chi Shui-Men (12.38).

East and south-east approaches are through Lam Tong Hoi Hap (Tathong Channel) (13.41) and Lei Yue Mun; or through Sheung Sz Mun (13.40), the channel between Po Toi Group and Hong Kong Island, and thence into Tung Pok Liu Hoi Hap (East Lamma Channel) (13.23); or through Lema Channel (13.36) and thence into Tung Pok Liu Hoi Hap or Sai Pok Liu Hoi Hap (West Lamma Channel) (13.18).

For traffic separation schemes in the approaches to Hong Kong see 12.38a, 13.22, 13.23 and 13.41.

Charts 3279, 3280, 1918

13.4

The deepest approach is through Tung Pok Liu Hoi Hap (East Lamma Channel), thence W of Tsing Chau and Kellett Bank to the deep water berths at Tsing Yi and Kwai Chung Container Terminal.

Vessels are advised to enter and leave Hong Kong Harbour by the W entrance whenever possible since most mooring buoys and anchor berths are in the W part of the harbour and these can be approached more easily from the W quarantine anchorage than from Kowloon Bay. This approach also avoids the cross-harbour traffic in the central part of the harbour which can be particularly heavy in the vicinity of the ferry piers.

Vessels should proceed to the Western Quarantine and Immigration Anchorage where inward clearance facilities are available throughout the 24 hours.

Because Lei Yue Mun (13.52) lies below the flight path of Kai Tak Airport, vessels whose masts or superstructures exceed 30·5 m above sea level cannot enter or leave harbour through this channel unless fitted with VHF and permission has been obtained from the Director of Marine. Vessels without VHF must enter or leave harbour through Tung Pok Liu Hoi Hap. Details of reporting procedures and frequencies are given in *Admiralty List of Radio Signals Vol 6*.

Fog occurs in the W approaches less frequently than in Lam Tong Hoi Hap (13.41), and vessels can on occasions use the W approach route when visibility in Lam Tong Hoi Hap is greatly reduced.

Visibility reports are broadcast by the Marine Department when the visibility in any part of Victoria Harbour or the approaches to Hong Kong is less than 2 miles.

13.4a

Pilotage is compulsory for the following vessels when within Hong Kong waters (13.2a):

(*a*) All vessels of 10 000 grt or over
(*b*) Vessels between 1000 and 10 000 grt if securing to a Government mooring buoy
(*c*) Vessels between 1000 and 10 000 grt if carrying dangerous cargoes or proceeding to or from a wharf or terminal for working dangerous goods
(*d*) Any vessel of 300 grt or over which is unable to proceed under own power, to manoeuvre or to work anchors; has any defect affecting watertight integrity; or is in a condition liable to cause injury or damage to persons, property or the environment.

Vessels may proceed directly to or from a pilot boarding place or a specified anchorage provided that the notification required by 13.4b has been made to the Director of Marine.

Pilot boarding places. Pilots embark and disembark at the following places:

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East Lamma Channel: at the N end of the traffic separation scheme (13.32).
Lam Tong Hoi Hap (Tathong Channel): ½ mile SSW of Fat Tong Chau Light (13.46).
Urmston Road: 1 mile SSW of Lan Kok Tsui (12.39) (chart 1919).
Chek Mun Hoi Hap (Tolo Channel): at the entrance (14.22) (chart 1915).

Specified anchorages for vessels waiting to enter harbour are as follows:
SE Lamma, S Lamma and SW Lamma anchorages (13.20a) (chart 1918).
Urmston Road Anchorage (12.39) (chart 1919).
Tai Pang Wan (Mirs Bay) Anchorage (14.22) (chart 939).

13.4b

Arrival information. All vessels over 300 grt should notify the Director of Marine through Hong Kong coast radio station or by telex at least 12 hours before entering Hong Kong waters giving the following information:

Vessel's name and call sign.
Flag.
Type of vessel.
Gross tonnage.
Length.
Whether fitted with bow or stern thruster.
Name of Master.
Number of persons on board.
Reason for proposed call.
Estimated maximum draught on arrival.
Any defects in main engines, thruster, steering gear, anchor gear or watertight integrity.
Whether carrying any dangerous or prohibited goods or radioactive material.
Local agent.
Any special condition of vessel.
ETA in Hong Kong waters.
Pilotage requirements.
Pilot boarding place or specified anchorage intended to use.
ETA at boarding place or anchorage.
Berth in Hong Kong Harbour if known.
Present time, position, course and speed.
Any other information.

The notification should be confirmed at least 4 hours before arrival through Hong Kong coast radio station or by VHF giving the following information:

Name.
Flag.
ETA in Hong Kong waters.
Confirmation of status of main engines, thrusters, steering gear, anchor gear and watertight integrity.
Confirmation of pilot boarding place or specified anchorage intended to use and ETA there.
Present position, course and speed.
Any other information.

Vessels under 300 grt must obtain permission from the Director of Marine to enter Hong Kong waters giving as much notice as practicable. The following information is required:

Name and nationality.
Number of persons on board.
Type of vessel.
Reason for calling at Hong Kong.
ETA in Hong Kong waters.

13.4c

A **Vessel Traffic Management System** is mandatory for all vessels of over 300 grt when within Hong Kong waters. Vessels should maintain a constant listening watch and should report on the following occasions:

(*a*) When passing reporting points shown on the chart;
(*b*) When embarking or disembarking a pilot;
(*c*) When anchoring, mooring or berthing alongside;
(*d*) Before leaving, a berth or anchorage;
(*e*) Any incident or condition affecting navigation.

Full details of the system are given in *Admiralty List of Radio Signals Vol 6*.

ISLANDS IN SOUTH AND SOUTH-WEST APPROACH TO HONG KONG

Chart 3026

Jiapeng Liedao

13.5

Wenwei Zhou (21° 49′ N, 113° 56′ E), 30 m high, is the SW island of Jiapeng Liedao; several below-water rocks extend up to 1 cable from Wenwei Zhou.

A **light** is exhibited from a white tower on the E corner of a dwelling, 19 m in height, situated on Wenwei Zhou.

Wenwei Zhou Lighthouse
(*Original dated 1951*)

Jiapeng Liedao is a chain of islands and rocks extending 10 miles NE from Wenwei Zhou. At the SW end of this chain several small islets lie within 3¼ miles of Wenwei Zhou. **Chan Zhou,** 89 m high is the highest and lies 2 miles NE of Wenwei Zhou. **Ping Zhou,** 27 m high and **Shih Zhou** 35 m high are respectively, the S and E islets of the group and lie 1½ miles ESE and 3¼ miles ENE of Wenwei Zhou.

Miaowan Dao (Wengyaishan Ting), 227 m high at its N end, lies 1½ miles N of Shih Zhou. Two islets, the highest of which is 62 m high, lie close together off the S end of Miaowan Dao, and two below-water rocks, on the outer of which the sea breaks, lie close off the NE extremity of the same island.

Beijian Dao, the largest and NE island of Jiapeng Liedao, lies ½ mile NE of Miaowan Dao. **Ass's Ears,** two remarkable peaks near the SW end of Beijian Dao, rise almost perpendicularly to an elevation of 300 m. **Kueifou Shih,** a white rock 34 m high, lies ¾ mile E of the E extremity of Beijian Dao, and **Oyen Shih** (21° 56′ N, 114° 03′ E), a rock 39 m high, lies 1 mile N of Beijian Dao. **Lixin Pai,** a dangerous pinnacle with a depth of 4·0 m over it and on which the sea breaks only in heavy weather, lies 1 mile NE of Oyen Shih.

Charts 938, 3026

Dangan Liedao

13.6

Dangan Liedao (Li-ma Ch'un-tao) is a group of

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five islands lying from 5 to 17 miles NE of Jiapeng Liedao, and separated from it by **Tai Ta Mi Channel** which is deep and 3 miles wide. Dangan Liedao are all steep-to and there are no off-lying dangers except Mosquito Rock and Iroquois Rock on the NE side of Tai Ta Mi Channel. Boats can find shelter at various places on the N side of these islands, but the S sides provide no shelter except S of Zhiwan Dao. The three main islands are sparsely inhabited; fishing appears to be the only occupation. See view (13.36).

Xidna Dao (21° 58′ N, 114° 08′ E), 136 m high at its E end, rocky and precipitous, is the SW island of Dangan Liedao and lies 4¾ miles NE of Beijian Dao. **Mosquito Rock,** over which the sea breaks except during very calm weather, has a depth of 2·4 m (8 ft) over it and lies 1½ cables S of the SW extremity of Xidan Dao; **Iroquois Rock,** a pinnacle with a depth of 9·8 m (32 ft) over it, lies 1¼ miles NW of the same point.

Zhiwan Dao, an island with four distinct peaks, the highest of which reaches an elevation of 372 m lies ½ mile N of Xidan Dao. Anchorage, sheltered from the NE Monsoon, may be obtained by small vessels W of **A Kan Head,** a projection on the N side of Zhiwan Dao, but it is not recommended as the holding ground is uncertain.

Er Zhou, 472 m high, is the highest and most central of the islands in Dangan Liedao and lies 3 cables E of Zhiwan Dao; it appears to be flat-topped from most directions. **Er Men,** the channel between Zhiwan Dao and Er Zhou is deep and clear of dangers. **Round Island,** 40 m high, lies 2 cables NW of the NE extremity of Er Zhou.

Charts 938, 937, 3026

13.7

Dangan Dao (Tan-kan Shan), the largest and NE island of the group, is 321 m high near its middle, and lies NE of Er Zhou. It is separated from Er Zhou by **I-Men,** where there are depths of over 20 m (66 ft) and which is clear of dangers. A bay, situated at the E end of the N side of Dangan Dao provides excellent shelter for small vessels during the NE Monsoon. **Anchorage** with good holding ground may be obtained in a depth of 15 m (49 ft) in this bay.

A **light** is occasionally exhibited from a look-out station situated on a summit ¾ mile W of **Dangan Zui (San-ya-shih Tsui),** the NE extremity of Dangan Dao.

Eddies occur off Dangan Zui.

Charts 341, 938

Islands N of Jiapeng Liedao

13.8

Sanmen Liedao is a group of rocks lying E of Ai Zhou (12.11) and N of Jiapeng Liedao. **Henggang Dao** (22° 02′ N, 114° 01′ E), the S island of the group, has a rounded hill 140 m high at its S end. **Chu-wan-tou,** 71 m high with an above-water rock close N of it, lies close N of Henggang Dao.

Sanmen Dao, the middle island of the group, is 93 m high. **Anchorage** with shelter from NE winds may be obtained by small vessels in depths of 11 to 18 m, mud, in **Sanmen Wan,** a bay situated on the W side of the island. **Sanmen Zhou,** 64 m high and rocky, lies 4 cables NE of Sanmen Dao.

Hei Zhou, 96 m high, is the NW island of the group and lies ½ mile NW of Sanmen Dao. A group of islets and rocks the highest of which is **Yuangang,** 43 m high, lie within 3 cables NW of Hei Zhou.

13.9

Wailingding Dao (22° 06′ N, 114° 02′ E) lies 3 miles NE of Sanmen Liedao. It is a rugged island rising to an elevation of 310 m near its centre; its NW side is low and rocky. There is a natural boat harbour on the W side of the island close SE of its NW extremity. **Needle Rocks,** two pinnacles close together with a depth of 1·5 m over them, lie 1½ cables SW of the NW extremity of the island.

A rock, 3 m high, with another rock which dries 0·6 m and is steep-to, 2 cables N of it, stands ¾ mile NE of Wailingding Dao. Vessels should give the NE side of this island a wide berth especially at night.

TAI YUE SHAN—SOUTH AND EAST SIDES

Chart 341

13.10

Tai Yue Shan (Lantau Island) is the W and largest island in the colony of Hong Kong. It has an area of over 55 square miles and lies within the New Territories. The island is mountainous and rather barren throughout its length, with habitations only in the valleys, at the mouths of streams or on isolated plateaux. Numerous bungalows may also be seen throughout the coastal areas of the island.

Fung Wong Shan (Lantau Peak) (22° 15′ N, 113° 55′ E), the summit 931 m high, lies 10 miles NNW of Wailingding Dao. Wild tea is still gathered on the slopes of this mountain.

Charts 341, 1918

13.11

Between Fan Lau Kok (22° 12′ N, 113° 51′ E) (12.25a), the SW extremity of Tai Yue Shan, and the S extremity of **Chi Ma Wan Peninsula,** 7¾ miles E there are two large bays. The W bay is clear of dangers. **Cha Kwo Chau,** an islet 29 m high, lies in the W part of the E bay and **Mid Rocks,** which dry 2·7 m, lie 1 mile NE of Cha Kwo Chau.

Shek Kwu Chau (22° 12′ N, 113° 59′ E) lies S of Chi Ma Wan Peninsula, from which it is separated by a channel 6 cables wide. This island has two peaks, of which the NW one is 183 m high and surmounted by large boulders. **Mei Pai,** a ledge of rocks, 2·4 m high, stands 1¾ cables off the NW side of the island.

A **light** is exhibited from a square white concrete tower, 5 m in height, situated on the N side of Shek Kwu Chau.

A submarine power cable is laid from a bay on the E side of Shek Kwu Chau N to Tai Yue Shan.

Chart 1918

13.12

Cheung Chau, which lies 1½ miles ENE of Shek Kwu Chau, consists of two parts joined by a narrow neck of land on which the important fishing town of **Cheung Chau** (22° 13′ N, 114° 01′ E) is situated.

Cheung Chau Aeronautical Meteorological Station, painted red and white and consisting of two buildings with four masts close by, stands on a small hill ½ mile E of the W extremity of the island. When local storm signals are displayed at Hong Kong Harbour, supplementary signals are displayed here.

Cheung Chau Wan on the W side of the narrow neck of land is a typhoon shelter. Three detached breakwaters, from the ends of which lights are exhibited, protect the bay from the W. There are numerous dolphins in the bay and it is always congested with junks. Light-beacons mark the fairway from the entrance N of the central detached breakwater to the ferry terminal at the head of the bay.

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Tung Wan, on the E side of the narrow neck of land is the principal bathing beach.

Adamasta Channel is the waterway between Cheung Chau and Tai Yue Shan. A light-beacon (white tower; radar reflector) stands on **Adamasta Rock,** which dries 1·2 m, in the centre of the channel. Adamasta NW Light-buoy (starboard hand) and Adamasta SE Light-buoy (port hand) mark the extent of shoal water surrounding the rock.

A light-beacon (white concrete tower) situated 2¾ cables NW of Adamasta Rock marks the rocky area off the SE coast of Tai Yue Shan.

13.13

Submarine cables and a water pipeline are laid across Adamasta Channel.

Measured distance. Between the SE sides of Shek Kwu Chau and Cheung Chau there is a measured distance of 5559 .6 m (18 240 ft), marked at the SW end by two beacons (white diamond) on Shek Kwu Chau and at the NE end by two similar beacons on Cheung Chau. The running course is 065°–245°.

There is a spoil ground 2 miles S of Cheung Chau.

13.14

Between the E extremity of Chi Ma Wan Peninsula (22° 13′·9 N, 114° 01′·1 E) and a point two miles N, there are two bays. The S bay is known as **Shap Long Wan,** and the scattered village of **Shap Long** lies at the extreme head of the bay. There is a prison situated close to the shore 5 cables ESE of the village. The prison jetty, with depths of 1·8 m at its head, projects about 90 m from the shore 1 cable N of the prison. There is a tide gauge on the jetty.

The land at the head of **Ngan Kwong Wan (Silver Mine Bay),** the N bay, is cultivated and three villages are situated a short distance inland. There is a ferry pier situated on the S shore of the bay 2 cables from its head.

A **light-beacon** (red and white chequered metal column) is situated on the SW side of Ngan Kwon Wan 7 cables NW from **Castle Rock** (25° 15′ N, 114° 00′ E), the point separating Ngan Kwong Wan from Shap Long Wan.

A rock, which dries 2·1 m, lies 2½ cables SSW of the N entrance point of Ngan Kwong Wan; it is marked by a **light-beacon** (white column), 6 m in height.

Hei Ling Chau, 1¼ miles NE of Cheung Chau (13.12) is 181 m high near its centre, and at its S end there is a peak 120 m high. Three prominent pinnacle rocks, the highest of which has an elevation of 4 m stand W of the 120 m peak and 1¾ cables offshore.

Chau Kung (22° 16′ N, 114° 03′ E), an island 107 m high near its E end, lies NE of Hei Ling Chau and is separated from it by a narrow channel, both sides of which are fringed with drying rocks.

A light-beacon (red and white chequered metal column) stands close N of Chau Kung at the junction of water pipelines running W to the SW side of Ngan Kwong Wan, NNW to Peng Chau, S to Chau Kung thence to Hei Ling Chau, and E to Sha Wan (13.31) (22° 16′·3 N, 114° 07′·2 E) on Hong Kong Island.

Charts 1918, 1919

13.15

Peng Chau (22° 17′ N, 114° 02′ E), 1½ miles NE of the N entrance point of Ngan Kwong Wan, rises in its N part to an elevation of 46 m and in its S part to 95 m; these two parts are connected by a low sandy neck forming a sandy bay open to NE. On this neck stands **Shan Ting Tsuen** town.

Tai Lei, an island 20 m high, lies close W of the NW end of Peng Chau. **Pillar Rock,** 4·6 m high, stands 1 cable WSW of Tai Lei.

A bridge spans the channel between Peng Chau and Tai Lei.

Submarine cables are laid W from Peng Chau to Tai Yue Shan.

Comber Rock (22° 17′·6 N, 114° 01′·5 E) on which stands a light-beacon (white column) is situated close off the end of a breakwater extending SE from the shore of Tai Yue Shan. An outfall extends 2 cables SE from the coast ½ cable N of the root of the breakwater.

Light-buoys SW of the breakwater head mark the approach to the passage between Tai Lei and Comber Rock.

Chart 1919

13.16

Tai Pak Wan (Discovery Bay) on the E side of Tai Yue Shan is entered 1 mile NW of Peng Chau. Two islets, the E one, 7 m high, and a rock which dries 1·5 m lie in the entrance to this bay. Within the bay there is **anchorage** for small craft in depths of 4 m, mud; the bay appears to be free of dangers. At **Tai Pak** a town at the head of the SW part of Tai Pak Wan there is a ferry pier.

Chok Ko Wan (Penny's Bay) is entered 1¼ miles N of Peng Chau; at the head of the bay there is a boatyard near the village of **Mong Tung Hang;** a mooring buoy lies S of the boatyard.

Charts 341, 1918

13.17

A traffic separation scheme runs from the NW end of Tai Yue Hoi Hap (Lantau Channel) along the S coast of Tai Yue Shan and then either through Adamasta Channel, or S of Shek Kwu Chau and Cheung Chau, to the NE end of Sai Pok Liu Hoi Hap (West Lamma Channel). For details see 13.22.

SAI POK LIU HOI HAP

Chart 1918

13.18

The S entrance of **Sai Pok Liu Hoi Hap (West Lamma Channel)** lies between the SE extremity of Cheung Chau (22° 12′ N, 114° 02′ E) (13.12) and the SW extremity of Pok Liu Chau (Lamma Island) (13.20), 4¼ miles ESE. The channel lies between the islands off the E side of Tai Yue Shan (13.10) on its W side and Pok Liu Chau (13.20) and Hong Kong Island on its E side. A depth of 8·6 m can be carried in the fairway but the least charted depth in the traffic separation scheme (13.22) is 7·6 m.

13.19

Sham Shui Pai (Cheung Chau Rock) (22° 12′·4 N, 114° 02′·6 E), which dries 2·1 m, lies 3 cables E of the E extremity of Cheung Chau. A light-beacon (white concrete tower) stands on the rock.

Charts 3280, 1918, 1919

Kau Yi Chau, uninhabited and 115 m high, is the outer island lying off the E side of Tai Yue Shan, and is situated 1½ miles NE of Chau Kung (13.14).

Kau Yi Chau Light-structure is a white concrete framework tower situated on the NE extremity of the island. A minor light is exhibited from the S side of the island.

Siu Kau Yi Chau (22° 17′ N, 114° 03′ E), a small uninhabited island 36 m high, lies ¾ mile WNW of Kau

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Yi Chau. A small rocky patch, with a least depth of 1·8 m over it, is situated 1 cable WNW of Siu Kau Yi Chau.

Douglas Rock, with a depth of 0·9 m over it, lies on a small bank in the middle of the N part of the channel between Siu Kau Yi Chau and Kau Yi Chau. Douglas Rock is covered by the red sector of Kau Yi Chau Light between the bearings of 092° and 128°. A buoy (special) is moored close N of the rock.

A **spoil ground** lies N and W of Kau Yi Chau: its NE extremity is marked by Kau Yi Chau Light-buoy (special), moored 4 cables NNE of Kau Yi Chau. Mariners are advised not to enter the spoil ground nor the area immediately N of it, since the depths may be less than charted.

Datum Rock, 0·5 m high, lies 9 cables SW of Kau Yi Chau. A light-beacon (white column) stands on the rock.

Chart 1918

13.20

Pok Liu Chau (Lamma Island) (22° 13′ N, 114° 07′ E) lies between Sai Pok Liu Hoi Hap (13.18) and Tung Pok Liu Hoi Hap (13.23) and provides a good radar response at a distance of 12 miles. The island, which is relatively steep-to with most of the fringing dangers lying within one cable of the shore, consists of a succession of steep hills of barren appearance and is nearly divided into two parts by a low isthmus near its centre. It is partially cultivated and is of considerable archaeological interest. **Shan Tei Tong (Mount Stenhouse),** the summit of the island with an elevation of 351 m, lies 1¼ miles WNW of **Yuen Kok** (22° 11′ N, 114° 09′ E), the SE extremity of the island and the termination of a rocky hilly promontory. This point rises suddenly to **Unchau,** a small round hill, 54 m high, which is prominent from N or S bearings.

A **light** is exhibited from a white concrete tower on Yuen Kok.

13.20a

Anchorages. South West Lamma Anchorage, South Lamma Dangerous Goods Anchorage and South East Lamma Anchorage are situated 15 cables SW, 11 cables SSW and 12 cables SSE of Yuen Kok respectively. They are specified anchorages which vessels may anchor in on arrival without pilotage assistance. See 13.4a.

13.21

Sham Wan is entered between Yuen Kok and **Tai Kok,** a high rocky point ¾ mile WSW. The bay is clear of dangers and has a sandy beach at its head, but it is not recommended as the swell is almost continuous and landing, even at its head, is bad.

Ha Mei Wan, on the W side of Pok Liu Chau, is entered between **Ha Mei Tsui,** a rounded sloping point, situated 2 miles W of Yuen Kok, and **Po Lo Tsui** (22° 13′ N, 114° 06′ E), 2 miles NNW. A conspicuous white square building, with a mast close W of it, stands 8 cables E of Po Lo Tsui. Good **anchorage** well sheltered from E winds, can be obtained in Ha Mei Wan.

13.21a

A power station, at which there are two conspicuous chimneys, stands on reclaimed land E of Po Lo Tsui. A jetty 320 m long for deep-draught coal carriers is situated W of the power station and is approached in a 351° direction by a channel entered 1¾ miles S of Po Lo Tsui. The channel is dredged to 15·7 m (1981) and is marked by light-beacons and light-buoys (special). Anchoring in the channel or in a turning basin off the jetty is prohibited.

There is a passenger jetty close NE of Po Lo Tsui.

13.21b

Yung Shue Wan is entered between Po Lo Tsui and Shek Kok Tsui, the NW extremity of Pok Liu Chau, 9 cables N. This bay is divided into two parts by **Otsi Kok,** a small peninsula. **Otsi Pai,** which is marked by a **light-beacon** (white concrete column), lies ¾ cable W of Otsi Kok. The S part of Yung Shue Wan can be used by small vessels. A ferry pier, is situated on the S side of Otsi Kok. Another pier is situated 2 cables SE of Otsi Kok. The N part of Yung Shue Wan is shallow and foul.

Shek Kok Tsui (22° 14′ N, 114° 06′ E) rises steeply inland; a reef with a rock which dries 0·6 m at its extremity and on which there is a **light-beacon** (white concrete tower), extends 1 cable NW from the point.

Pak Nok, the N extremity of Pok Liu Chau, is situated 8 cables ENE of Shek Kok Tsui. There is a prominent white boulder on Pak Kok, which is fairly steep-to.

Charts 341, 1918

13.22

Traffic separation schemes have been established from the NW end of Tai Yue Hoi Hap (Lantau Channel) through Sai Pok Liu Hoi Hap (West Lamma Channel) to the entrance to Hong Kong Harbour.

North West Siu A Chou Traffic Separation Scheme is entered at Siu A Chau Light-buoy (safe water) (22° 11′·3 N, 113° 51′·3 E) (12.25a) and leads ENE to Lo Kei Wan Light-buoy (safe water), moored 6 cables N of the N extremity of Siu A Chau (12.25) at the W end of Precautionary Area No 2. There the scheme divides, the N branch passing N of Shek Kwu Chau (13.11), NW of Cheung Chau (13.12) and SE of Hei Ling Chau (13.14); the S branch passing S of Shek Kwu Chau and Cheung Chau. The two branches rejoin in Precautionary Area No 1 (22° 16′ N, 114° 05′ E).

The separation line of **North Cheung Chau Traffic Separation Scheme,** the N branch, is marked by SE Lantau Light-buoy (safe water), moored 1¼ miles ENE of the N extremity of Shek Kwu Chau, Adamasta Rock (13.12) and Hei Ling Light-buoy (safe water) moored 3 cables SE of the S extremity of Hei Ling Chau.

The separation line of **South Cheung Chau Traffic Separation Scheme,** the S branch, is marked by Shek Kwu Chau Light-buoy (safe water), moored 6 cables SSE of the S extremity of Shek Kwu Chau, and Cheung Chau Light-buoy (safe water), moored 8 cables SE of Sham Shui Pai (13.19).

WGI–1 Light-buoy (safe water), moored 8 cables ESE of Kau Yi Chau (13.19), marks the NE end of Precautionary Area No 1 at the junction of the schemes.

The schemes have not been adopted by IMO and the rules in Appendix II apply.

TUNG POK LIU HOI HAP

Chart 1918

13.23

Tung Pok Liu Hoi Hap (East Lamma Channel) lies between Pok Liu Chau (Lamma Island) (13.20) and the SW side of Hong Kong Island, and is the shortest and principal route to the W entrance of Hong Kong Harbour from E. It has depths of over 18 m in the fairway and has a least width of 9 cables between Nam Tsui, the NE end of Pok Liu Chau, and Fo Yeuk Chau (13.30), one of several islands which lie close off the SW side of Hong Kong Island. It is entered from S between Yuen Kok (13.20), the SE end of Pok Liu Chau, and

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Wong Ma Kok (13.26), the S extremity of Hong Kong Island, 3½ miles ENE.

A traffic separation scheme leads through Tung Pok Liu Hoi Hap. For details see 13.32.

13.24

On the W side of Tung Pok Liu Hoi Hap and on the SE side of Pok Liu Chau, **Tung O Wan** is contained between Yuen Kok and **Wong Chuk Kok** (22° 13′ N, 114° 10′ E), the E extremity of the island, 1½ miles NNE. This bay is of no value as an anchorage as a constant swell sets in and landing can only be made in the finest weather.

A rock, with a depth of 4·6 m over it, lies ¾ cable E of Wong Chuk Kok; there are overfalls in the vicinity of this rock.

Wong Chuk Kok Light-structure is a white concrete framework tower, 4 m in height, standing on the NE extremity of the point.

13.25

Sok Kwu Wan (Picnic Bay) (22° 13′ N, 114° 08′ E) between Wong Chuk Kok and Luk Chau, 1¾ miles NW, is clear of dangers in its outer part. There is a cement plant on reclaimed land on the NW side of the bay. A jetty at which vessels of 20 000 dwt can be accommodated is situated NE of the plant: the approach channel to the jetty and the area off it are dredged to 10·6 m and marked by light-buoys.

There are two jetties for small vessels in the NW corner of the bay and the inner bay is designated a fish culture zone. Vessels proceeding to or from the inner part of the bay should keep S of the approach channel to the cement plant jetty.

An **anchorage** in which cement is loaded into lighters is situated in the outer part of the bay.

Luk Chau (George Island) (22° 13′·6 N, 114° 07′·9 E), 67 m high, lies close off a point on the N side of Sok Kwu Wan.

Luk Chau Wan lies between Luk Chau and **Nam Tsui,** 9 cables NW.

A light is exhibited from a white concrete tower situated on Nam Tsui 2½ cables ESE of Pak Kok (13.21b).

Many submarine cables, including power cables, and a water pipeline are laid across Tung Pok Liu Hoi Hap from the vicinity of Luk Chau Wan. Anchoring is prohibited in cable areas shown on the chart. Beacons (white diamond) marking the limits of a power cable area stand on Pak Kok and 3¾ cables SE.

Lamma Patch (22° 14′·9 N, 114° 07′·2 E), with a depth of 8·3 m over it, lies in the middle of the fairway 4 cables NNE of Pak Kok: it is marked by a light-buoy (isolated danger).

13.26

Wang Ma Kok (Bluff Head) (22° 12′ N, 114° 13′ E), the E entrance point of Tung Pok Liu Hoi Hap at its SE end, is a high bluff and fairly steep-to, situated at the S end of **Stanley Peninsula** which rises to an elevation of 167 m and extends from the S side of Hong Kong Island. A satellite tracking station, with conspicuous dish aerials and radio masts, stands on the SE side of the peninsula.

A light is exhibited from a white square building on Wong Ma Kok.

Oliver Shoals composed of coral lie 9 cables S of Wong Ma Kok: the least depth over them is 12·5 m.

Chesterman Rock, with a least depth of 13·7 m over it, lies ¾ mile WSW of Wong Ma Kok. A light-buoy (S cardinal) is moored 1 cable SW of the rock.

13.27

Chek Chue Wan (Stanley Bay) is entered on the W side of Stanley Peninsula between Wong Ma Kok and **Chung Hom Kok,** 1¼ miles NW. The latter is a rocky barren promontory rising to an elevation of 131 m with a remarkable boulder, 6 m in height, on its summit. There is a prominent white house on the SW side of Chung Hom Kok.

Storm signals are displayed at Chek Chue village which stands at the head of the bay.

A concrete pier, with a depth of 0·9 m at its head projects from the E side of the bay, 4 cables from its head.

Anchorage may be obtained in Chek Chue Wan during the NE Monsoon, but in the SW Monsoon it is not recommended as the swell makes it uncomfortable and landing difficult.

13.28

Ngan Chau (Round Island) (22° 13′ N, 114° 11′ E), ¾ mile WNW of Chung Hom Kok, is uninhabited and 70 m high. A ledge, with depths of less than 5 m over it and with many drying rocks, extends ¾ cable offshore and encircles the island. **Ngan Chau Ngam Pai,** with a depth of 2·1 m over it, lies 1¼ cables W of the NW extremity of Ngan Chau.

Ngan Chau Light-structure is a white square building standing on the S extremity of the island.

Between Chung Hom Kok and Sham Shui Kok (13.29), 1¾ miles NW, an irregular bay recedes about 1¼ miles NE and is divided into three smaller bays.

Chung Hom Wan, the S bay, is of no importance and is entered E of Ngan Chau.

Tsin Shui Wan (Repulse Bay), the middle bay, is separated from Chung Hom Wan by a point close off which is a group of islets. There is a sandy beach on the E side of the N part of the bay, and many tall and prominent buildings back the shore. A buoy (red conical) is moored near the head of the bay, 12 cables NNE of Ngan Chau. Tsin Shui Wan is clear of dangers, but there is generally a swell and landing can be difficult.

Anchorage may be obtained in Tsin Shui Wan in a depth of 10 to 11 m.

Sham Shui Wan (Deep Water Bay), the N of the three bays, is separated from Tsin Shui Wan by a cliffy point close off which lies **Tong Po (Middle Island),** 118 m high. Close N of Tong Po Chau is a yacht and small boat anchorage; there are a number of landing places, including a jetty and a slip on the N side of this island. Sham Shui Wan is well sheltered by Tong Po Chau but **submarine cables** land at a beach at the head of the bay and prevent its use as an anchorage. Behind the beach there are many prominent buildings.

Sham Shui Kok (22° 14′ N, 114° 10′ E) is the S extremity of a peninsula which has steep cliffs on its S and E sides and rises to **Nam Long Shan (Brick Hill)** 282 m high, 7 cables N of the point.

13.29

On the NE side of Tung Pok Liu Hoi Hap, **Heung Kong Tsai Hoi Hap (Aberdeen Channel)** (13.34) is entered from S between Sham Shui Kok and Ap Lei Pai, ½ mile W.

Ap Lei Pai, 66 m high, with a cliffy coast, is a small uninhabited island connected to the SE end of Ap Lei Chau by a narrow neck. **Assistance Rock,** with a depth of 2·7 m over it, lies ¾ cable SW of the S end of Ap Lei Pai. The SW extremity of Hong Kong Island in line with the E extremity of Fo Yeuk Chau, see below, bearing 315° leads SW of this rock.

Ap Lei Pai Light-structure is a white concrete tower standing on the S extremity of the island.

Ap Lei Chau, which rises to **Yuk Kwai Shan (Mount Johnson),** 194 m high, in its SE part, is

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separated from the SW side of Hong Kong Island by Heung Kong Tsai Hoi Hap on its E side and by Heung Kong Tsai Wan (13.33) on its N side. The S part of Ap Lei Chau is steep and covered with grass and bushes.

Shell Terminal, a T-headed jetty flanked by dolphins, is situated on the SW side of Ap Lei Chau 3 cables SE of the W extremity of the island: a tanker of 100 000 dwt, 274 m long, drawing 15·2 m can berth at the terminal.

A power station, with five conspicuous chimneys 122 m high, stands 1 cable E of the W extremity of Ap Lei Chau.

Lung Shan Pai (West Rock), a group of rocks 3 m high, stands 1¾ cables S of the W extremity of Ap Lei Chau. There are deep passages between Lung Shan Pai and both Ap Lei Chau and Ko Yeuk Chau, but the tidal streams are strong and caution is necessary.

A **light** is exhibited from a white tower standing on Lung Shan Pai.

Fo Yeuk Chau (Magazine Island), 21 m high, lies ¾ cable W of the W extremity of Ap Lei Chau (22° 15′ N, 114° 08′ E) and is separated from it by a deep channel 1½ cables wide. Near the summit of Fo Yeuk Chau there is a prominent building with an arched roof and one or two small buildings adjoining it.

A **light** is exhibited from a white concrete tower situated on the W extremity of Fo Yeuk Chau.

13.30

Kai Lung Wan (Kellett Bay) is entered on the N side of the W entrance to Heung Kong Tsai Wan (13.33), 4 cables NW of the W extremity of Ap Lei Chau. The NW side of the bay rises steeply to a peak 93 m high on the S slope of which are the tower blocks of the town of Wah Fu.

Beacons (white diamond) marking the limits of a power cable area (13.25) stand on the W entrance point of Kai Lung Wan and 3¼ cables NW.

Pollux Rock, which dries 0·3 m, is the outermost of a group of rocks lying close SW of the W entrance point of Kai Lung Wan.

Chart 3280

13.31

Between Pollux Rock and the W extremity of Hong Kong Island (22° 16′·6 N, 114° 06′·8 E), 2 miles NW, three bays, **Pok Po Wan, Kong Sin Wan** and **Sha Wan,** have been largely reclaimed.

Water pipelines are laid from Sha Wan W to Tai Yue Shan (13.14) and S to Pok Liu Chau.

An **aero light** is exhibited from a position 1 cable W of **Mo Sing Leng (Mount Davis),** 267 m high, the summit of the NW part of Hong Kong Island, situated 5 cables E of the W extremity of the island.

Charts 1918, 3280

13.32

A **traffic separation scheme** leads through Tung Pok Liu Hoi Hap (East Lamma Channel), thence NNW to the W entrance to Hong Kong Harbour.

The separation zone is marked at its SE end by LCS1 Light-buoy (safe water), moored 7½ cables E of Wong Chuk Kok (13.24), the E extremity of Pok Liau Chau; and at its NW end by LCS2 Light-buoy (safe water) moored 4½ cables WSW of the W extremity of Hong Kong Island. Lamma Patch (13.25) lies in the separation zone at the turning point abreast the N extremity of Pok Liu Chau.

Inshore traffic zones are situated between the NW-going traffic lane and Hong Kong Island and between the SE-going traffic lane and Pok Liu Chau.

The scheme has not been adopted by IMO and the rules in Appendix II apply.

The **pilot boarding place** for vessels approaching Hong Kong Harbour from the W is 4 cables SSE of LCS2 Light-buoy: see 13.4a.

Chart 1918

Heung Kong Tsai Wan

13.33

There is passage for small craft through **Heung Kong Tsai Wan (Aberdeen Harbour)** (22° 14′·8 N, 114° 09′·0 E) but the harbour is crowded with moored craft and traffic is heavy. Vessels using the fairway must proceed at slow speed to avoid damage by wash to local craft.

The W entrance to Heung Kong Tsai Wan lies between the N coast of Ap Lei Chau and **Western Breakwater** which extends 2 cables SSE from a position on Hong Kong Island 3 cables N of the W extremity of Ap Lei Chau. A **light** is exhibited at the head of Western Breakwater. The harbour is safe and well sheltered.

A submarine pipeline is laid 1½ cables SW from the coast close W of the root of the W breakwater.

A submarine cable is laid across the entrance close W of the breakwater; three overhead power cables, with a vertical clearance of 26 m, cross the entrance close E of the breakwater; and submarine cables, one of them power, are laid across the harbour 2 cables within the entrance.

To the E of the breakwater there are many wharves and jetties on both N and S shores extending as far as **Deep Pass Point,** 9 cables E. The fish market stands on the N shore 3½ cables within the entrance. There are also tower blocks on both shores.

A bridge with a vertical clearance of 16·1 m crosses the harbour at Deep Pass Point.

The Roman Catholic College close E of Deep Pass Point is conspicuous. A yacht marina is situated on the NE side of the harbour SE of the college. Floating restaurants are moored in the centre of the harbour 2 cables SSE of Deep Pass Point.

13.34

Heung Kong Tsai Hoi Hap (Aberdeen Channel), the SE entrance to Heung Kong Tsai Wan, is entered between Sham Shui Kok (13.29) and Ap Lei Pai, ½ mile W. It is narrow and dangerous rocks lie close to the fairway; it is not recommended.

Breakwaters extend from each side of the S part of Heung Kong Tsai Hoi Hap, ½ mile N of the entrance.

A **light** is exhibited from a white column, 3 m in height, standing on the head of each breakwater.

A **light-beacon** stands on **Wong Nei Pai** on the W side of the channel ¼ mile N of the breakwaters.

13.35

Storm signals. When local storm signals are displayed in Hong Kong Harbour, supplementary signals are displayed at the police station at the E end of Hueng Kong Tsai Wan.

Tidal streams in Hueng Kong Tsai Wan. In Deep Pass at the E end of the harbour, the tidal streams attain a rate of 2 to 3 knots at springs, the E-going stream beginning of about the time of high water at Hong Kong, and the W-going stream at about the time of low water locally. In the W part of the harbour there is very little stream.

Anchorages. Vessels can anchor outside the W entrance of the harbour one cable W of the head of Western Breakwater (13.33) in a depth of 9 m.

There are **typhoon shelters** close E of Western

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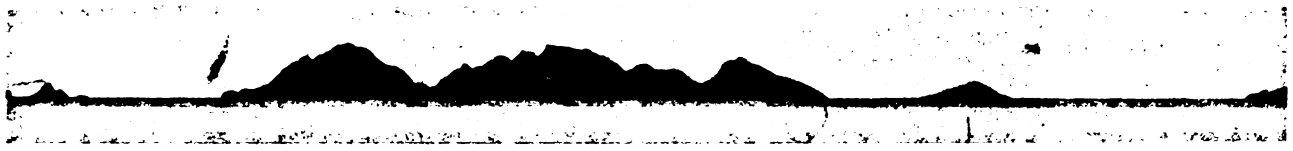


(13.36) Approaches to Lema Channel from ESE
(Original dated 1864)

Breakwater and in **Po Chong Wan** on the E side of the harbour 3½ cables SSE of Deep Pass Point.

For anchorages S of Pok Liu Chau (Lamma Island) see 13.20a.

EAST AND SOUTH-EAST APPROACHES TO HONG KONG

Charts 937, 938, 1917

13.36

Lema Channel (Dangan Shuidao) lies between Dangan Liedao (13.6) and the Po Toi group of islands 6 miles NNW: it is deep and clear of dangers except for a dangerous wreck marked by a light-buoy (isolated danger) lying in the E approach to the channel, 3¼ miles SE of Waglan Island (Wang Lan) (13.39).

The Chinese authorities prohibit navigation by foreign shipping in Lema Channel, except for the designated routes given in 13.3: see 12.4. Vessels intending to enter harbour using East Lamma Channel should follow the route in 13.3 keeping to the N side of the strait and within 3 miles of Po Toi Island.

Tidal streams in Lema Channel. During SW winds, there is generally an E set, the streams setting E while the tide is falling, and NE while it is rising; with strong SW winds, the rate of the stream is about 1½ knots.

Chart 1917

Po Toi Group

13.37

Po Toi Group is a group of islands and rocks, which lie up to 3 miles SE and S of Hok Tsui (22° 12′·5 N, 114° 15′·5 E) (13.41), the SE extremity of Hong Kong Island. They are separated from this point by Sheung Sz Mun (13.40).

Po Toi Island, the S and largest island of the group, is 238 m high, and inhabited; the island is of barren appearance, there being only a small quantity of brushwood in the valleys. On its SW side, **Tai Wan,** a boat cove which is usually occupied by sampans, has a village of the same name at its head. **Mat Chau,** 37 m high, is situated 4 cables NW of **Nam Kok Tsui,** the SW extremity of the island.

There is a white painted patch on the W side of Po Toi Island.

Po Toi Lighthouse is a prominent white square building standing 1¾ cables NE of Nam Kok Tsui.

A rock, 1 m high, is situated 3 cables WSW of **Tai Kok Tsui** the SE extremity of Po Toi Island, and ½ cable offshore.

Beaufort Island (Lo Chau), the NW of the Po Toi Group, lies NW of Po Toi Island, separated from it by a deep channel 3½ cables wide. Beaufort Island is 267 m high, flattened at the summit and with steep slopes; its NW brow has a small peak with a few large and remarkable boulders on it. The island is uninhabited.

A **light** is exhibited from a white concrete tower, 8 m in height, situated on the NW extremity of Beaufort Island.

Lo Chau Pak Pai (Castle Rock), 15 m high, lies 4½ cables SW of Beaufort Island. Two obelisks at the head of Tai Tam Bay (13.40), in line bearing 358°, lead 3 cables W of this rock. Lo Chau Pak Pai is covered by the red sector of the light on the NW extremity of Beaufort Island between the bearings of 000° and 034°.

13.38

Sung Kong, 146 m high, covered with grass and small bushes, and which is uninhabited, lies ¾ mile NE of Po Toi Island. An islet, 27 m high, lies close off the NE end of Sung Kong.

Fury Rocks, 5 m high, with rocky and uneven ground close round, stand 2¾ cables NW of Sung Kong.

13.39

Waglan Island (Wang Lan) (22° 11′ N, 114° 18′ E), a barren, rocky islet 30 m high at its N end and divided into two parts by a narrow boat passage, lies ¾ mile E of Sung Kong. There is a white mark painted on the cliff face of the N side of the N part of Waglan Island. A small pier is situated on the NW side of the S end of the island.

Likin Rock, with a depth of 5·2 m over it, lies 2 cables W of the S end of Waglan Island. **Branch Shoal,** a rock with a depth of 11·0 m over it, lies 1½ cables SW of Waglan Island.

Waglan Lighthouse is a round metal tower, 16 m in height, the upper half red and the lower half and lantern white, standing on the summit of the S part of the island. A fog signal is sounded at the lighthouse.

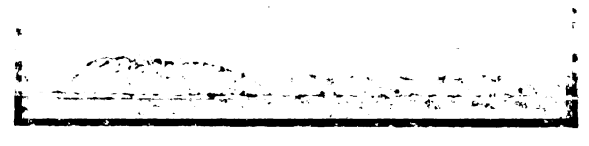
A racon transmits from the lighthouse.

There is a helicopter landing site in the S part of the island.

Tai Tam Bay

13.40

Tai Tam Bay is entered from the N side of **Sheung Sz Mun,** the channel separating the Po Toi group of



Waglan Island from SE
(Original dated 1981)
(Photograph by Crown Lands and Survey Office, Hong Kong)

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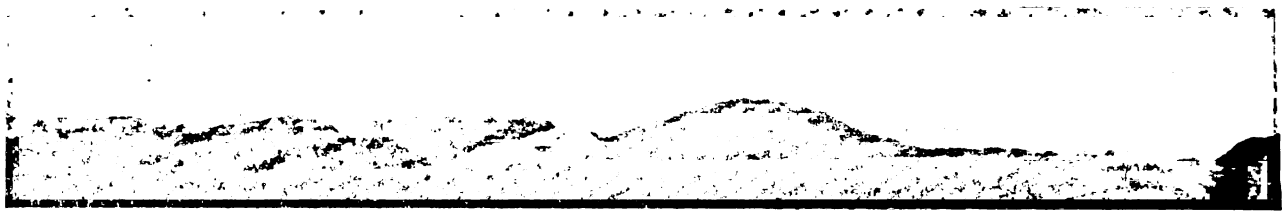

(13.40) W approach to Sheung Sz Mun
(*Original dated 1981*)

islands (14.36) from Hong Kong Island, between the SE extremity of Stanley peninsula (14.23) (22° 12′ N, 114° 13′ E) and the SW extremity of **d'Aguilar peninsula** 1¼ miles NE. The bay is clear of dangers.

Tweed Islet, 21 m high, lies on the W side of Tai Tam Bay, ½ mile N of the W entrance point.

The principal prison of the Colony, which has prominent white walls, stands on Stanley peninsula 2 cables NW of Tweed Islet.

A prominent group of white buildings stands on **Red Hill** 1 mile NNE of Tai Tam village.

Anchorage and shelter in bad weather during the NE Monsoon may be obtained in Tai Tam Bay. Off **Tai Tam** village, 8½ cables N of Tweed Islet, there is anchorage in depths of 11 m where it is well sheltered from all except S winds. Tai Tam Bay is not recommended during the SW Monsoon as the swell makes landing difficult. If anchoring in the N part of the bay, caution is necessary to avoid numerous fishing stakes.

Cable area. A submarine power cable crosses Tai Tam Harbour, at the head of the bay. Anchorage is prohibited within 30 m either side of its charted position.

Tidal streams in Sheung Sz Mun and Tai Tam Bay are negligible; the drift currents set up by the wind usually mask it.

Directions for Tai Tam Bay. Two obelisks, each 9 m in height and ¾ mile apart, in line bearing 358° lead into the bay. The rear obelisk is prominent, but the front one is grey and at a distance merges with the background.

LAM TONG HOI HAP

Charts 1917, 3279

13.41

Lam Tong Hoi Hap (Tathong Channel), which is the main channel leading into Hong Kong Harbour from SE, is entered between **Hok Tsui (Cape d'Aguilar)** (22° 12′·6 N, 114° 15′·5 E), the SE extremity of d'Aguilar peninsula, and Tathong Point, the S extremity of Tung Lung (13.43), 1¼ miles NE.

Tidal streams in Lam Tong Hoi Hap set NW on the rising tide and SE on the falling tide, the times being about the same and the rate about one-third of the values for Lei Yue Mun.

A **traffic separation scheme** is entered at TCS1 Light-buoy (safe water) (22° 13′·2 N, 114° 20′·0 E), moored 2¾ miles ESE of Tathong Point (13.43) and leads through the channel to Lei Yue Mun. TCS2, TCS3 and TCS4 Light-buoys (safe water) moored in the separation zone mark the turning points.

Inshore traffic zones are situated E of the N-going traffic lane and W of the S-going traffic lane.

The scheme has not been adopted by IMO. The rules to be followed by vessels using this scheme are given in Appendix II.

Chart 1917

Kau Pei Chau, a green islet 43 m high, lie close S of Hok Tsui. A small area of foul ground lies 3 cables E of this islet.

Cape d'Aguilar coast radio station, with many radio masts is situated near Hok Tsui. A dish aerial is prominent.

Hok Tsui Lighthouse is a white tower situated 1½ cables WNW of the point.

Two conspicuous radio towers, 27 m in height and 45 m apart, stand on d'Aguilar Peak, 9 cable NW of Hok Tsui.

Bokhara Rocks (22° 13′ N, 114° 16′ E) are three below-water rocks which lie on a bank of sand and rock ¾ mile NE of Hok Tsui. The S rock is the shallowest with a depth of 3·7 m over it. Bluff Head (13.26), bearing 258° and open S of Kau Pei Chau clears these rocks well to the S; the W extremity of Fat Tau Chau or Junk Island (13.46) in line with Tai Long Pai, bearing 358°, clears then to W; the summit of Beaufort Island (13.37) in line with the E extremity of Kau Pei Chau bearing 202°, clears then to NW; and Pottinger Peak (13.42) in line with Tai Long Pai bearing 319° clears Bokhara Rocks to NE. These rocks are covered by the red sector of Hak Kok Tau Light when bearing more than 337°.

13.42

On the W side of Lam Tong Hoi Hap, **Ng Fan Chau,** a flat-topped steep and cliffy islet, 44 m high, situated 1 mile N of Hok Tsui, lies in the entrance to **Heung To Wan (Island Bay),** which is shallow with a sandy beach at its head.

Tai Tau Chau, 53 m high, steep, cliffy and covered with low scrub, lies 1½ cables N of Ng Fan Chau.

Shek O Wan is a rocky and open bay immediately N of Tai Tau Chau. It affords no protection for anchoring, and a heavy swell usually sets into it during the NE Monsoon.

Tai Long Pai (22° 14′ N, 114° 16′ E), a group of rocks, lies in the fairway of Lam Tong Hoi Hap 4 cables ENE of Tai Tau Chau. The rocks are covered by the red sector of Hak Kok Tau Light bearing more than 337°.

A **light-beacon** (red and white chequered concrete tower; radar reflector) is situated on Tai Long Pai.

The coast between Tai Tau Chau and **Hak Kok Tau** (Cape Collinson), 1¾ miles N, is rocky, and landing is difficult except in a few places in the coves. **Tai Long**

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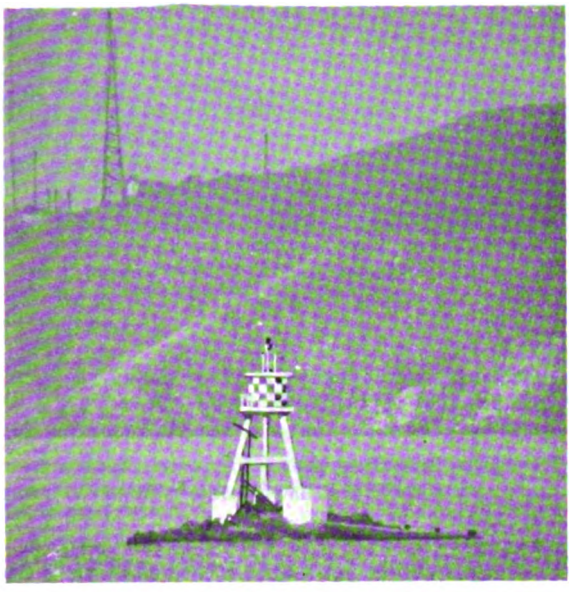
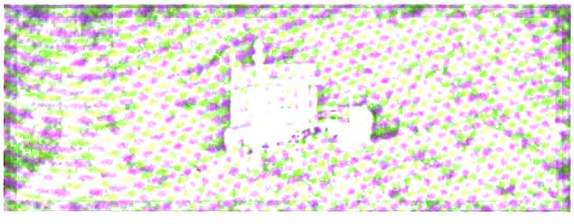


Tai Long Poi Light-beacon from NE
(Original dated 1984)
(Photograph by HMAS Moresby)

Wan (Big Wave Bay), which lies between these two points is subject to heavy seas even in calm weather. The coast N of Tai Long Wan is steep-to and there are a few off-lying rocks close inshore.

A **light** is exhibited from a metal column on a white building situated at the extremity of Hak Kok Tau. An **aero light** is exhibited from a position 1¼ cables W of Hak Kok Tau Light-structure. Air obstruction lights mark the radio masts nearby.



Hak Kok Tau Light from E
(Original dated 1984)
(Photograph by HMAS Moresby

Pottinger Peak, 310 m high, lies 7 cables SW of Hak Kok Tau; **Mount Collinson,** 347 m high, is the N peak of a ridge known as **Dragon's Back,** and is situated ¾ mile WSW of Pottinger Peak.

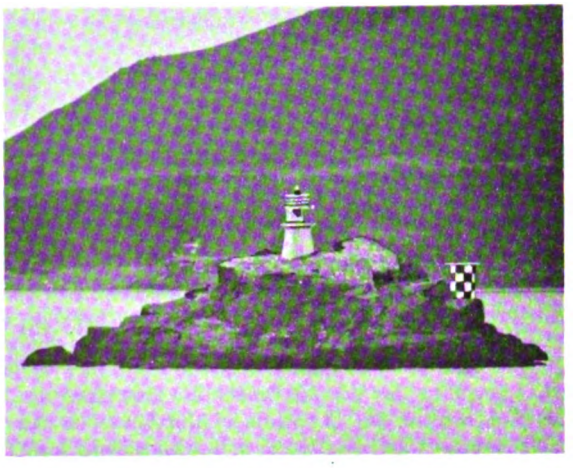
13.43

Tung Lung Chau (22° 15′ N, 114° 17′ E), an island 247 m high in its E part, lies on the NE side of Lam Tong Hoi Hap, 1 mile ENE of Tai Long Pai. It is very steep on its E side.

Tathong Point, on which a conspicuous white mark has been painted, is the S extremity of a rocky peninsula 57 m high with steep black cliffs, which form the S extremity of Tung Lung Chau.

Tathong Point Light-beacon is a white pedestal 2 m in height, standing ½ cable NNE of the point. A fog signal is sounded at the light-beacon.

Nga Ying Pai, a flat rock 4 m high, lies 5 cables NW of Tathong Point and 1 cable offshore.



Nga Ying Pai Light from SW
(Original dated 1984)
(Photograph by HMAS Moresby)

A **light** is exhibited from a white square concrete tower standing on Nga Ying Pai.

At **Lam Tong** village, situated 4½ cables SW of the N extremity of Tung Lung Chau, there is a T-headed concrete jetty 60 m long, from the head of which a light is exhibited.

A conspicuous boulder lies at an elevation of 91 m in the N part of the island 3 cables SW of its N extremity.

13.44

Fat Tong Mun separates Tung Lung Chau from **Fat Tong Kok** (22° 16′ N, 114° 18′ E), the S end of a projection on the mainland 1¾ cables NE. The passage is about ½ cable wide between the rocks on both sides, and is fouled by isolated rocks in the narrowest parts. It is only suitable for small craft with local knowledge.

On the S side of the E approach to Fat Tong Mun, a rock with a depth of 1·8 m over it, lies on the W edge of a shoal situated 3½ cables SE of the N extremity of Tung Lung Chau.

A submarine power cable is laid across the W entrance to Fat Tong Mun.

Tidal streams in Fat Tong Mun set NW during the rising tide and SE on the falling tide, the times and rates being about the same as in Lei Yue Mun (13.52).

Directions for Fat Tong Mun. When entering from E the orange fixed aero light on Hong Kong Island 2 cables SE of Kung Am (13.52) (22° 17′ N, 114° 14′ E) in line with the gap between Kwun Tsai (13.45) and the mainland N, bearing 291½°, leads through Fat Tong Mun.

Charts 1917, 3279

13.45

Tai Miu Wan (Joss House Bay) lies between the NW side of Tung Lung Chau and the mainland to the N. **Tit Cham Chau,** an uninhabited island 30 m high, is the larger of two islets lying close off the NW entrance point of the bay. **Kwun Tsai,** 10 m high and the smaller of the two islets, lies 1 cable NE of Tit Cham Chau. Depths are irregular in the central part of the bay due to occasional dredging operations. See view on page 254.

Tin Hau Temple stands on the N side of Tai Miu Wan 8 cables NNW of the N extremity of Tung Lung Chau. In 1981 reclamation was in progress and a pier was under construction S of the temple.

Good anchorage may be obtained in the inner part of the bay, with the SW extremity of Tit Cham Chau

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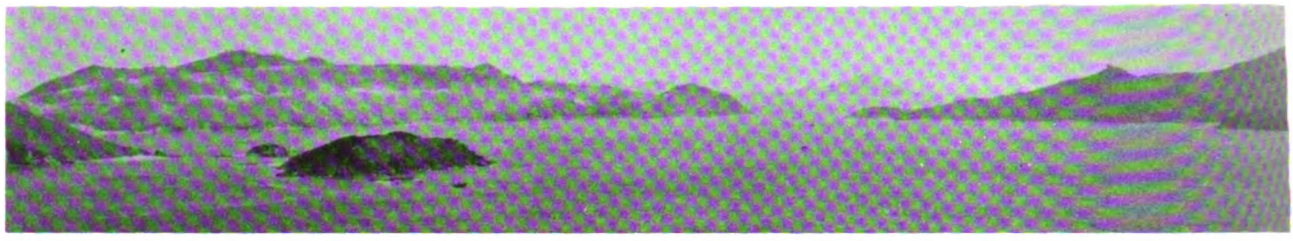


(13.45) Tai Miu Wan from W
(Original dated 1981)

bearing 238° and the N extremity of Tung Lung Chau bearing 123°, in a depth of 12 m, mud, but the outer part of the bay is foul.

Chart 3279

13.46

Fat Tong Chau (Junk Island) (22° 17′ N, 114° 16′ E), ¾ mile NNW of Tit Cham Chau, is 98 m high, grassy with a few low trees, and is connected to the mainland by a rocky shoal. Three islets lie off the S extremity of Fat Tong Chau. A **light** is exhibited from a white concrete tower, 5 m in height, situated on the S islet. A conspicuous boulder, at an elevation of 62 m, is situated in the NW part of Fat Tong Chau.

There is a spoil ground in the area between Fat Tong Chau and Tit Cham Chau.

Fat Tong Chau Light from S
(Original dated 1984)
(Photograph by HMAS Moresby)

There is a spoil ground in the area between Fat Tong Chau and Tit Cham Chau.

The **pilot boarding place** for vessels approaching Hong Kong from SE is situated ½ mile SSW of Fat Tong Chau Light.

13.47

Tseung Kwan O (Junk Bay) is entered between Fat Tong Chau and **Lei Yue Mun Point** (22° 17′·2 N, 114° 14′·5 E) 1¼ miles WNW.

Tidal streams in Tseung Kwan O are weak.

Shek Miu Wan is a small bay lying in the SE part of Tseung Kwan O, E of Fat Tong Chau.

There is a **marine farm,** whose limits can be seen on the chart, in Shek Miu Wan.

Anchorage. There is a dangerous goods anchorage in the S part of Tseung Kwan O, ¾ mile ENE of Lei Yue Mun Point; see also 13.95.

13.48

There is a **measured distance** of 1853·2 m on the E side of Tseung Kwan O. Each end is marked by pairs of white beacons with orange topmarks, the front point down and the rear point up, in line bearing 059°: the S pair of beacons stands ¼ mile N of the N entrance point of Shek Miu Wan. The running course is 149°/329°.

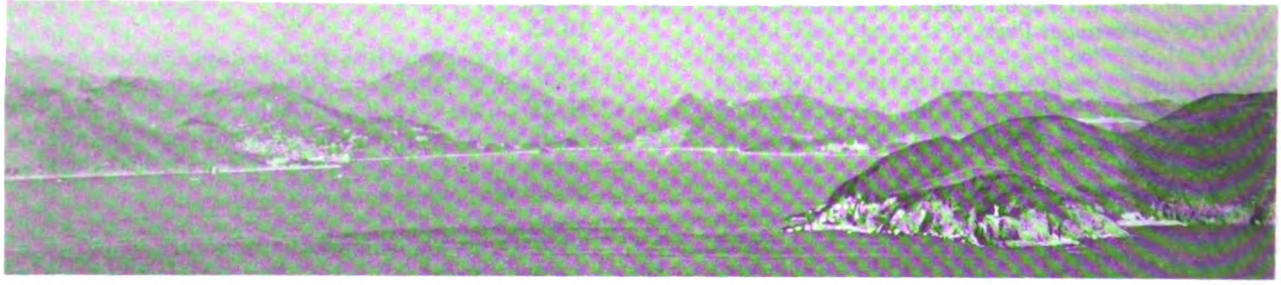
Reclamation is in progress (1987) between the pairs of beacons.

Hang Hau town (22° 19′ N, 114° 16′ E) is situated at the head of **Ap Tsai Wan,** a bay at the NE end of Tseung Kwan O.

Large scale reclamation is in progress (1987) at the N end of Tseung Kwan O.

13.49

The W shore of Tseung Kwan O, from Lei Yue Mun Point to **Mun Chau** (22° 18′ N, 114° 15′ E), 9½ cables NE, is steep-to and has only a narrow coastal bank with a few off-lying rocks close inshore in places. A pillar, 2 m high, stands on the S extremity of Mun Chau.



(13.47) Tseung Kwan O from S
(Original dated 1981)

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A spoil ground extends about 1 cable offshore between Lei Yue Mun Point and Mun Chau.

Reclamation is in progress up to 3 cables N of Mun Chau.

Tiu Keng Wan, a shallow bay, is entered N of a steep point 4½ cables N of Mun Chau. The straggling township, **Tiu Keng Leng (Rennie's Mill),** extends along the shores of the bay.

A promontory, which forms the W entrance point of the large bay at the head of Tseung Kwan O and on which stands a white church, is situated 5 cables NNE of Tiu Keng Wan. A cross on the church is occasionally illuminated.

13.50

On the SW side of Lam Tong Hoi Hap from Hak Kok Tau (22° 16′ N, 114° 15′ E) (13.42) to **Kai Pei Ha,** 3¾ cables NW, the coast is steep with a rocky foreshore.

Works are in progress (1987) in **Siu Chai Wan,** a bay close NW of Kai Pei Ha, and part of the bay has been reclaimed.

Chai Wan typhoon shelter is protected by a breakwater extending NNW from the W side of Siu Chai Wan. Lights are exhibited from the breakwater head and from the W entrance point of the shelter, ½ cable SSW.

Between Chai Wan typhoon shelter and Kung Am (13.52) on the S side of Lei Yue Mun, 9 cables NW, there has been extensive reclamation and housing development.

13.51

Anchorage is foul in Lam Tong Hoi Hap in an area indicated on the chart between Fat Tong Chau to the N and Tai Mui Wan (chart 1917) to the S.

Lei Yue Mun

13.52

Lei Yue Mun (22° 17′ N, 114° 14′ E) is entered at the NW end of Lam Tong Hoi Hap and is the E entrance channel to Hong Kong Harbour. The channel is deep and clear of dangers and the shores on both sides are nearly steep-to beyond a distance of ¼ cable offshore.

Siu Chau Wan Light from SE

Kung Am Light from NE

(Originals dated 1984)

(Photographs by HMAS Moresby)

Lights are exhibited from a tripod on a red and white chequered base at **Kung Am** on the S side of Lei Yue Mun and from a tripod on a black and white chequered base at **Siu Chau Wan** on the N side.

13.53

Directions for East Entrance. Vessels using the E entrance should enter Lam Tong Hoi Hap at the E end of the traffic separation scheme. This channel and Lei Yue Mun are deep and clear of dangers.

After passing TCS4 Light-buoy (13.41) steer 299° which leads through Lei Yue Mun into the Eastern Fairway of Hong Kong Harbour.

If entering Lam Tong Hoi Hap in thick weather, which is not recommended, steer to pass 4½ cables S and W of Tathong Point and 3 cables SW of Nga Ying Pai Light-structure (13.43) off the SW side of Tung Lung, when course should be altered to 338° to pass close E of TCS4 Light-buoy. If it is not possible to proceed into Hong Kong Harbour, vessels should haul over to either side, out of the fairway and anchor as convenient in depths of 16 to 18 m; depths in the vicinity are very even and soundings do not decrease except within the lines joining projecting points, so caution is necessary when approaching the shore.

Because Lei Yue Mun lies below the flight path of Kai Tak Airport, vessels whose masts or superstructures exceed 30·5 m above sea level are not permitted to enter or leave Hong Kong Harbour through this channel unless fitted with VHF and until permission has been received. Vessels without VHF enter or leave Hong Kong Harbour through East Lamma Channel. See *Admiralty List of Radio Signals Vol 6.*

WEST APPROACH TO HONG KONG HARBOUR

Chart 3280

13.54

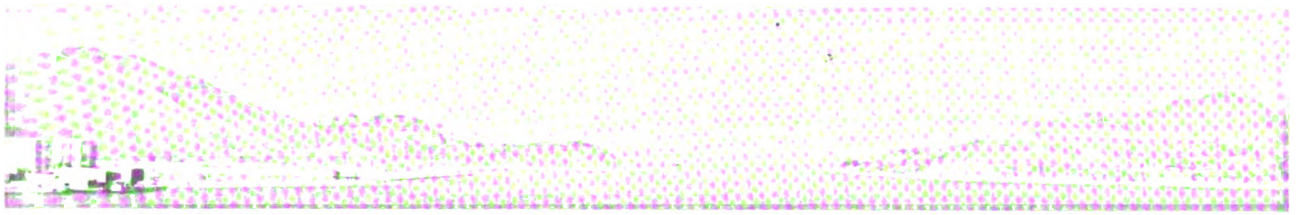
The principal entrance to Hong Kong Harbour from W is through Northern Fairway, dredged to 11 m, but vessels of moderate draught can enter through Sulphur Channel (13.66) and Southern Fairway.

If berthing in the NW part of the harbour proceed N in the charted prohibited anchorage after leaving East Lamma Channel, passing W of Tsing Chau (Green Island) (13.67) and Kellett Light-buoy (W cardinal) (22° 19′·0 N, 114° 05′·7 E) and NW of Quarantine Light-buoy (port hand). Thence proceed NNE for berths in Rambler Channel or E into Northern Fairway (13.66).

Charts 3280, 1919

13.55

Hong Kong Harbour can also be approached from Zhujiang Kou through Urmston Road and Chi Shui-Men (12.38). The channel passes between Tai Lam Kok



(13.52) Lei Yue Mun from SE

(Original dated 1981)

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(22° 21′·5 N, 114° 01′·0 E) (12.35) and Cheung Sok, 1¼ miles SSE, and thence through one of three channels between Tai Yue Shan (13.10) and the mainland ENE.

13.56

The N coast between Tai Lam Kok and a point 1 mile E is bold and steep-to.

A **light** is exhibited from a white concrete column at **Ha Pang,** 6½ cables E of Tai Lam Kok.

A **submarine cable area,** marked by beacons at both ends, crosses the channel in a SE direction to Kwai Shek, the NE extremity of Tai Yue Shan.

Tsing Lung Tau village lies at the E end of a sandy beach 9 cables ENE of Ha Pang. Shallow water extends about 1 cable offshore and the bay is often packed with small junks.

Sham Tseng town (22° 22′·2 N, 114° 03′·5 E) lies in the centre of a shallow sandy bay, a considerable portion of the head of which has been reclaimed. There is a wharf at Sham Tseng and unlit dolphins and mooring buoys in the bay.

13.57

On the S side of the channel **Luk Keng Light** (22° 20′·3 N, 114° 01′·2 E) is exhibited from a white concrete tower, 4 m in height, situated near the NW end of **Cheung Sok,** a grassy island 29 m high. **Luk Keng Bay** formed by the SW side of this island and the N shore of Tai Yue Shan 2 cables SW is obstructed by wooden posts showing above water.

Yam O Wan, a shallow bay, is entered between Cheung Sok and a point 3 cables ESE. This bay is extensively used for the storage of timber, the N boundary of which is marked by a line of piles.

There is **anchorage** for the discharge of logs in Yam O Wan and a mooring buoy has been laid in the entrance to the bay.

Tsing Chau Wan village is situated at the head of a small bay, protected on its N side by a narrow rocky projection, 1 mile E of Cheung Sok. A conspicuous red sand cliff, 88 m high, is visible about 1½ cables inland from the village of Tsing Chau Wan.

Kwai Shek (22° 21′·0 N, 114° 02′·6 E), the N extremity of Tai Yue Shan, lies 1½ miles NE of Cheung Sok.

Kap Shui Mun

13.58

Kap Shui Mun is the W of the three channels between Tai Yue Shan and the mainland ENE and runs between that island and **Ma Wan** (22° 21′·0 N, 114° 03′·5 E). It is the channel usually used by ships and small craft in preference to the other two channels as it is shorter; the fairway is deep and about 1 cable wide at its narrowest part. Vessels using Kap Shui Mun should keep in the middle of the channel on a heading 143° or 323°.

The SW side of the channel, between Kwai Shek and a point 1 mile SE, is fringed by a reef and a narrow coastal bank. About 4 cables SE of Kwai Shek there is a small bay, on the NW side of which is a ruined slipway.

13.59

A **light** is exhibited from a white framework tower, 8 m in height, situated on the W extremity of Ma Wan at the N entrance to Kap Shui Mun.

Close S of the W extremity of Ma Wan, there is a narrow bay along the N shore of which is the fishing village of **Ma Wan,** where there is a stone jetty. Small boats can lie alongside this jetty or can obtain reasonable anchorage immediately E and SE of it.

13.60

Tidal streams in the vicinity of Kap Shui Mun are strong, and at the sides of the channels cause whirls and eddies sufficient to make small craft unmanageable.

The ebb stream flows E parallel to the N sides of Tai Yue Shan and Ma Wan increasing in rate as the channel narrows at the N end of Tai Yue Shan where it attains a rate of 3½ knots at springs.

The N portion of the ebb stream flows between the N coast of Ma Wan and the mainland, attaining a greater rate, as much as 4¾ knots having been observed just N of the NE extremity of Ma Wan. The S portion of this stream, after passing the N extremity of Tai Yue Shan, strikes the W extremity of Ma Wan and is deflected S through Kap Shui Mun. In the bay between the NW and W extremities of Ma Wan, the ebb stream runs in all directions, part N and part recurving S in whirls. Close NW of the W extremity, it sets strongly towards that point and into the narrow bay S of it; farther SE it sets generally direct through Kap Shui Mun, the greatest rate recorded being a little over 4 knots.

The flood stream, S of Ma Wan probably sets W until it strikes the E side of TaiYue Shan and is then deflected through Kap Shui Mun, where it attains a considerable rate, 5¼ knots having been recorded. It meets the weaker flood stream flowing W along the N side of Ma Wan at a line joining the NW extremity of that island and Kwai Shek, but is only slightly deflected by it, and flows across in a NNW and NW direction to strike the coast of the mainland where it turns W. The stream on the SW side of the channel W of Kwai Shek is slight.

In April 1935 HMS *Falmouth* reported that at springs the NW-going flood stream in Kap Shui Mun attained a rate of over 8 knots; a fresh E wind had been blowing for four days.

See also *Admiralty Tidal Stream Atlas—Hong Kong.*

HONG KONG HARBOUR

Chart 938

13.61

Hong Kong Island, which forms the S side of Hong Kong Harbour, is a picturesque island rising sharply to a central ridge which is mainly over 300 m high. The summit of the island, **Victoria Peak,** 552 m high, is near the W end of the island. Natural vegetation is mostly grass and bushes, with small trees in sheltered places. The city of **Victoria,** known locally as **Chung Wan,** extends 5 miles along the W part of the N side of the island.

Charts 1459, 3279, 3280

13.62

Harbour limits. Hong Kong Harbour, which is also known as **Victoria Harbour,** lies between Hong Kong Island and the mainland to the N, and extends E and W between the following limits:

West limit. A line drawn from the W extremity of Hong Kong Island to the W extremity of Tsing Chau (13.67), thence 355° to Tsing Yi.

East limit. A line drawn from Siu Chau Wan Light (13.52) on the SW tip of Lei Yue Mun peninsula in a

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213° direction to the W extremity of Kung Am (22° 17′ N, 114° 14′ E).

13.63

Controlling depths. Apart from the deep water berths at the S end of Tsing Yi (13.73) and the dredged channel with a least depth of 12·2 m leading from them to Kwai Chung Container Terminal (13.74), the controlling depth in Hong Kong Harbour is 11·0 m through the Northern Fairway (13.66) and Lam Tong Hoi Hap (13.41).

Density. The density of the sea water at Hong Kong is 1.023 gms/cm^3, but this may vary according to the season.

13.64

Pilotage is compulsory: see 13.4a.

A pilot vessel, when on station, in addition to the signals prescribed by the *International Regulations for Preventing Collisions at Sea (1972)*, may during conditions of poor visibility sound an identity signal of four short blasts.

13.65

Sea level. The height of sea level is affected by meteorological conditions, and strong winds may raise or lower the level by ½ metre or more.

Tidal streams in the fairway of the channels and in the harbour between Lei Yue Mun (13.52) and Tsing Chau (22° 17′ N, 114° 07′ E) set W with a rising tide and E with a falling tide, changing direction at local high water and low water.

Directions and rates, under normal conditions, can be obtained from *Admiralty Tidal Stream Atlas—Hong Kong*. In certain conditions with favourable winds and tides the rates may, however, be as follows:

Position	*Rate*
Lei Yue Mun	3 knots.
Off Tsak Yue Chung (22° 17′·6 N, 114° 12′·5 E)	2¾ knots on E-going stream.
Off Pak Kok (22° 17′·7 N, 114° 12′·0 E)	3½ knots on E-going stream.
Off Victoria Basin	1 to 2 knots.
Off HMS *Tamar*	3 to 3½ knots on W-going stream.
Off Kowloon	Nearly 3 knots on E-going stream.
In the main fairways	2 knots.

At times a nasty sea may be experienced up to 1 cable off the outer wall of Victoria Basin, and when the stream is running at its maximum rate, difficulty may be experienced when going to a buoy.

At berths between Queen's Pier and the E entrance to Tung Lo Wan 13½ cables E, there is a distinct set on to the berths with the W-going stream and a set off with the E-going stream.

In the various bays the tidal streams are weak and irregular.

WEST PART OF HONG KONG HARBOUR

Charts 3280, 3279

Fairways

13.66

A channel, in which anchoring is prohibited, leads N from the N end of Tung Pok Liu Hoi Hap Traffic Separation Scheme (13.32), W of Kellett Bank to the S end of Rambler Channel (13.73), and the N approach to Northern Entrance (see below).

There are four fairways through the W part of Hong Kong Harbour. The sides of these fairways are marked by light-buoys.

Lau Wong Hoi Hap (Sulphur Channel) leads from the N end of East Lamma Channel and West Lamma Channel and leads E close N of the W extremity of Hong Kong Island. It is free from dangers and is two cables wide at its narrowest part. Tsing Chau (13.67) lies on the N side of Sulphur Channel.

Southern Fairway leads from the junction with Sulphur Channel and **North Green Island Fairway** about ½ mile ENE of Tsing Chau to a position 1¼ miles W of Kowloon Point where it joins Northern Fairway and Central Fairway.

Northern Fairway is the principal fairway for all merchant ships entering Hong Kong Harbour via the W approaches. The fairway runs ESE along the N side of the Western Dangerous Goods Anchorage (13.95), W of Ngong Shuen Chau, thence SE to meet the E end of Southern Fairway. Northern Fairway is dredged to 11·0 m (1986).

Central Fairway, which commences from the junction of the E end of Northern Fairway and Southern Fairway, runs ESE and thence E to between Kowloon Point and Victoria Basin. The fairway is dredged to 11·0 m.

13.67

Tsing Chau (Green Island) on the NW side of Sulphur Channel is steep and covered with scrub. **Little Green Island,** 27 m high to the tops of the bushes, lies 1 cable E of Tsing Chau.

A **signal station** is situated on the summit of Tsing Chau. **Local storm signals** are displayed at the signal station.

Regulations for navigating in principal fairways; see 13.98a.

Green Island Lighthouse is a white round tower, 18 m in height, situated on the W extremity of Tsing Chau.

There are two landing places on Tsing Chau, a pier on the SE side and another at the explosives depot on the NE side. Landing at the latter pier is prohibited without the permission of the Marine Department.

A **submarine cable area** extends across Sulphur Channel in a SSE direction and includes the waters surrounding Tsing Chau and Little Green Island.

13.68

Kennedy Town is the waterfront area SW and W of **Shek Tong Tsui** (22° 17′·3 N, 114° 07′·3 E) at the W end of the city of Victoria.

Charts 1459, 3280

A strip of land about 1 cable wide on the foreshore between Shek Tong Tsui and the Macau Ferry Terminal (below) has been reclaimed and is under development (1987). A pier extending WNW from the NW extremity of the reclaimed land encloses a public cargo working area.

Chart 1459

The **Port Control Office (Port Communications Centre)** (22° 17′·4 N, 114° 09′·1 E) is situated on the top floor of a multi-storey car park ¾ mile WNW of Victoria Basin (13.87). A light is exhibited from a signal station at the Port Control Office, enabling other lights exhibited at the signal station to be distinguished from the surrounding lights of the town.

Local storm signals are displayed.

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The **Macau Ferry Terminal** is situated close NW of the Port Control Office. A restricted area which may not be enterd without the permission of the Director of Marine surrounds the terminal: its NE and NW extremities are marked by MFT1 and MFT2 Light-buoys (N cardinal).

The **China Ferry Terminal** is situated close W of the Macau Ferry Terminal.

Between the Port Control Office and Victoria Basin ¾ mile ESE there is a continuous line of high buildings and on the foreshore several piers. Star Ferry Piers are situated ¼ mile W of Victoria Basin.

Charts 3279, 3280

13.68a

Kellett Bank is the NW part of the coastal bank extending 2½ miles NNW from the W end of Hong Kong Island; leaving a channel ½ mile wide between its NW edge and the SE side of Tsing Yi (13.73). Kellett Bank protects Hong Kong Harbour from the W and has depths of less than 10 m over its NW part and less than 5 m over its SW part, about ½ mile NE of Tsing Chau. Numerous mooring buoys lie on Kellett Bank.

Western Quarantine and Immigration Anchorage and Western Dangerous Goods Anchorage are situated on the N part of Kellett Bank: see 13.95.

13.69

Ngong Shuen Chau (Stonecutters Island) (22° 19′ N, 114° 08′ E) lies on the bank which extends across the W end of the harbour 2½ miles NE of Tsing Chau.

Ngong Shuen Chau is a protected area and passage within 1½ cables and landing without permission are prohibited.

Many radio masts stand on the central and E part of Ngong Shuen Chau, some attaining an elevation of 109 m and most being marked by air obstruction lights. A conspicuous water-tower stands near the centre of the island.

A **light** is exhibited from a white concrete tower situated on the SW end of the island.

A **light** is exhibited from a white column, 4 m in height, close NW of the NE extremity of the island.

13.70

A group of rocks, the highest of which is 5 m high, extends ½ cable NW from the W extremity of the island.

A rock, which dries 1·2 m, lies 1 cable S of the SE extremity of Ngong Shuen Chau, and is marked by a buoy on its S side. The rock is also covered by the red sector of the light situated on the SW end of the island between the bearings of 285° and 301°. A rock, with a depth of 1·8 m over it, lies 1 cable WSW of White Point.

A reef, at the seaward end of which is a group of rocks one of which is 8 m high, extends 1 cable SE from the E end of the island. A **beacon** (white diamond topmark) stands on a rock at the outer end of the reef.

13.71

There is a **naval typhoon shelter** on the N side of Ngong Shuen Chau close W of the NE extremity of the island. In 1987 land reclamation was in progress NW of the shelter as far as the N extremity of the island. There is a pier within the naval typhoon shelter.

South Shore Pier is situated 1½ cables ENE of the SW extremity of the island and there is a pier on the SE side 1¼ cables NE of the SE extremity.

13.72

Between the NE end of Ngong Shuen Chau and the mainland ENE, there are several detached shallow rocky patches.

A **submarine power cable** is laid from a position 1¼ cables W of the E extremity of Ngong Shuen Chau in a N direction to Lai Chi Kok.

Lai Chi Kok (22° 20′ N, 114° 08′ E) is a large area of reclaimed land on the mainland N of Ngong Shuen Chau. There is a ship repair yard at Lai Chi Kok.

Landmarks. Two conspicuous chimneys stand near the coast at Lai Chi Kok.

Three piers extend from Cheung Sha Wan seawall containing a reclaimed area between Lai Chi Kok and the ferry terminal (22° 19′·7 N, 114° 09′·2 E) at **Sham Shui Po,** 1 mile SE.

In 1987 a pier was under construction 4 cables NW of Sham Shui Po Ferry Terminal.

At **Tai Kok Tsui,** S of Sham Shui Po, there are boat and ship building yards.

Sham Shui Po Anchorage is situated between Ngong Shuen Chau and Lai Chi Kok.

Chart 3280

Rambler Channel

13.73

Rambler Channel leads between the E side of **Tsing Yi** (22° 21′ N, 114° 06′ E) and the mainland into Tsuen Wan (13.80).

Tsing Yi Bridge, with a vertical clearance of 17 m, spans Rambler Channel between the mainland close NE of Rambler Shoal (22° 21′·0 N, 114° 06′·8 E) and the E extremity of Tsing Yi. Lights are exhibited from each side of the three bridge pillars.

13.74

Esso Tsing Yi Terminal (22° 19′·7 N, 114° 06′·0 E) is a tanker berth situated 2 cables W of the SE extremity of Tsing Yi. The berth is 280 m long and has depths of 15·8 m alongside.

China Resources tanker berth at the SE extremity of Tsing Yi is 195 m long and has depths of 12·2 m alongside.

Mobil tanker berth 8¾ cables NNE of the SE extremity of Tsing Yi is 213 m long and has depths of 11·6 m alongside.

13.74a

KC2 Light-buoy (port hand) is moored on the W side of Rambler Channel 5½ cables ENE of the SE extremity of Tsing Yi.

13.74b

Kwai Chung Container Terminal is situated on the E side of Rambler Channel S of Tsing Yi Bridge. There are five terminals, operated by Hong Kong International Terminals, Modern Terminals Ltd and Sealand, providing six berths for the largest container vessels. The area off the terminal is dredged to 12·2 m (1979). Terminal 6, under construction (1987) S of the existing terminals, will provide three additional berths.

13.74c

Rambler Shoal, a 1·5 m rock lying near the E shore of the channel close N of the container terminal, is marked by Rambler Buoy (special).

Two submarine pipelines extend 6 cables S from the vicinity of the shoal.

Rambler Channel N of Tsing Yi Bridge is described in 13.83.

Approach channel to Tsuen Wan

13.75

The main approach to Tsuen Wan (13.80) is by the channel between the W side of Tsing Yi and Ma Wan (13.58).

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A shoal area with a least depth of 4·7 m lies 1 cable off the SW extremity of Tsing Yi. It is marked by S Tsing Yi Light-buoy (S cardinal).

A spoil ground lies NW of the shoal.

Shipyards occupy a large part of the W side of Tsing Yi and several floating docks are moored offshore.

Peninsular Petroleum tanker berth is situated 8 cables NNW of the SW extremity of Tsing Yi. Tankers secure fore and aft to mooring buoys off a short jetty.

Shek Wan, a small bay with a sandy beach at its head, is situated 2¼ cables S of the NW extremity of the island.

A **light** is exhibited from a white concrete framework tower 4 m in height, situated on the NW extremity of Tsing Yi.

13.76

Pun Shan Shek (22° 19′·4 N, 114° 04′·0 E), a dangerous pinnacle rock with a depth of 0·9 m over it, lies on the W side of the fairway 13½ cables WSW of the SW extremity of Tsing Yi.

A **light** is exhibited from a white tower standing on the rock.

Pun Shan Dangerous Goods Anchorage is situated SSW of Pun Shan Shek; see also 13.95.

13.77

The W side of the channel to Tsuen Wan is formed by the E side of **Ma Wan,** an island 72 m high to the tops of the trees at its SE end. **Tang Lung Chau** (22° 20′·5 N, 114° 03′·6 E) lies 1½ cables SE of Ma Wan.

Tang Lung Chau Light is exhibited from a white framework tower, 12 m in height, situated on the summit of the island. A fog signal is sounded from a position near the light-structure.

There is a narrow boat channel between Ma Wan and Tang Lung Chau with a least depth of 1·8 m in its centre.

A depth of 6·8 m lies 2 cables E of the SE extremity of Ma Wan. SE Ma Wan Light-buoy (E cardinal) is moored 1½ cables ESE of this depth.

Laan Pai (22° 21′·4 N, 114° 03′·9 E), a spit of foul rocky ground, extends 1¼ cables E from the NE extremity of Ma Wan.

A **light** is exhibited from a white concrete pillar on a group of rocks at the E end of Laan Pai.

A submarine power cable is laid ENE from Ma Wan to Tsing Yi.

13.78

Tidal streams in the wide channel between Ma Wan and Tsing Yi flow SE and S on the ebb stream and attain rates of 2¼ to 3½ knots. This stream is marked by tide-rips which move through the channel and are generally found at no great distance from the Tsing Yi coast. At times, during the ebb, still water and occasionally a counter current N may be found along the E side of Ma Wan. The flood stream is weak compared with the ebb, running at a rate of only 1¼ knots in the centre of the channel, and of 2¾ knots in a NNW direction past Laan Pai off the NE extremity of Ma Wan. See also *Admiralty Tidal Stream Atlas—Hong Kong.*

13.79

From the NW extremity of Tsing Yi (22° 21′·6 N, 114° 04′·6 E) the main channel to Tsuen Wan turns E and passes between the N side of that island and the mainland to N. On the N side of this part of the channel, **Ting Kau,** an old village surrounded by large modern villas, stands at the head of a small sandy bay situated 6 cables N of the NW extremity of Tsing Yi. There is a fairly prominent hill 59 m high to the tops of the trees, 1 cable SW of Ting Kau.

Pak Sha Kiu, a mountain 472 m high and surmounted by a few large boulders, rises steeply from the N shore and is situated 8 cables NNE of Ting Kau (chart 938).

The fairway to Tsuen Wan passes close N of the NW extremity of Tsing Yi and S of Tsing Yi Light-buoy (S cardinal), thence N of TW4 and TW2 Light-buoys (port hand) and S of TW3 and TW1 Light-buoys (starboard hand).

The channel is dredged to 11·5 m as far as China Resources Oil Terminal at the NE end of Tsing Yi.

Two **submarine pipelines** and a **submarine cable** are laid across the channel about ¾ mile E of the NW extremity of Tsing Yi.

13.80

Tsuen Wan lies at the N end of Rambler Channel (13.83) and is entered from W between the N extremity of Tsing Yi (22° 21′·9 N, 114° 05′·9 E) and a point on the mainland 3 cables NNW.

Considerable reclamation has taken place along the N, E and SE shores of Tsuen Wan. Tsuen Wan town, an important industrial centre, extends round the head of the bay and has absorbed all the old villages.

The land N of Tsuen Wan rises steeply, and, at a distance of 2¾ miles in that direction, is **Tai-mo-shan** (chart 3026), 956 m high, the highest peak in this vicinity.

13.81

China Resources Oil Terminal is situated at **Ngan Ying Chau,** the NE extremity of Tsing Yi. The berth is 255 m long and there are depths of 12·2 m alongside.

There is a floating dock in the NW part of the bay and mooring buoys in the N part.

The E part of the bay is a **Dangerous Goods Anchorage;** see also 13.95.

13.82

Tidal streams. In the middle of Tsuen Wan the ebb stream runs E and SE at a rate of 2½ knots at springs; the flood stream, however, is a good deal weaker and is at times not appreciable. See also *Admiralty Tidal Stream Atlas—Hong Kong.*

Regulations. In order to minimize the risk of collision or stranding in the dredged channel N of Tsing Yi, the following regulations are in force:

An inward-bound vessel direct from sea shall give the Port Communications Centre one hour's notice of the expected time of passing Laan Pai (13.77) in the approach to the dredged channel: if the vessel is delayed more than 15 minutes, an outward-bound vessel may be given priority.

An inward-bound vessel from another berth in Hong Kong Harbour shall give the Port Communications Centre one hour's notice of the expected time of leaving her berth: upon leaving her berth, she shall give the expected time of passing Laan Pai. If the vessel is delayed more than 15 minutes in leaving her berth, an outward-bound vessel may be given priority.

An outward-bound vessel shall give the Port Communications Centre one hour's notice of the time of unberthing: if the vessel is delayed more than 15 minutes an inward-bound vessel may be given priority.

All vessels shall inform the Port Communications Centre of entering and leaving the dredged channel.

See *Admiralty List of Radio Signals Vol 6.*

Rambler Channel N of Tsing Yi Bridge

13.83

Rambler Channel is entered from N between the NE extremity of Tsing Yi and a point on the mainland 1¾ cables E.

Tsing Yi North Bridge is under construction (1987) across the channel close within its N entrance.

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Submarine power cables cross the channel in the same area.

A **typhoon shelter** protected by breakwaters is situated on the E side of the channel between the two bridges. Lights are exhibited from the breakwater heads at each entrance to the shelter.

Channel rocks lie on the E side of the channel 2 cables S of the N entrance and close off the typhoon shelter breakwater. The rocks are marked by a light-beacon (black triangle on a black and white concrete tower).

A conspicuous chimney at the Rambler Channel incinerator stands on the E shore close N of Tsing Yi bridge.

Tidal streams in Rambler Channel flow S on the ebb and attain a rate of 2¼ knots at springs. The flood stream is weak and at times non-existent. See also *Admiralty Tidal Stream Atlas—Hong Kong.*

EAST PART OF HONG KONG HARBOUR

Chart 3279

Fairways

13.84

Hung Hom Fairway runs from the E end of Central Fairway (13.66) as far as Pak Kok (North Point) (13.85). Hung Hom Light-buoy (safe water) is moored on the centre line 3 cables NW of Pak Kok.

Eastern Fairway runs from the E end of Hung Hom Fairway to the harbour limit at Lei Yue Mun. Its NE side is marked from NW to SE by Nos 5 and 3 Light-buoys (special) and No 1 Light-buoy (starboard hand) and its SW side at the junction with Hung Hom Fairway by No 4 Light-buoy (port hand).

Regulations for navigating in principal fairways; see 13.98a.

South side of the harbour

13.85

Aldrich Bay (22° 17′·1 N, 114° 13′·5 E) is entered 2½ cables W of Kung Am (13.52). The inner part is a **typhoon shelter** which is protected by a breakwater extending W from the E entrance point. There are ferry piers at **Sai Wan Ho,** the W entrance point of Aldrich Bay.

From Aldrich Bay W the foreshore of Hong Kong Island is densely built up with numerous high blocks. An elevated roadway runs along the shore, much of it suspended above water, from Aldrich Bay to Tung Lo Wan (13.86), 2½ miles W.

Pak Kok (Tsat Tsz Mui) (North Point) (22° 17′·7 N, 114° 12′·1 E) is the N extremity of Hong Kong Island. There are ferry piers at Pak Kok.

Chart 1459

13.86

Rambler Shoal with a least depth of 7·2 m lies 4 cables W of Pak Kok and 1½ cables off the S shore of the harbour.

Tung Lo Wan (Causeway Bay), ¾ mile WSW of Pak Kok, is a **typhoon shelter** protected by breakwaters.

Kellett Island (22° 17′·2 N, 114° 10′·8 E) joined to shore by reclaimed land forms the W side of Tung Lo Wan. A yacht club at which there is a flagstaff stands on the island.

Wan Chai Basin, a public cargo working area, is entered close W of Kellett Island.

There are ferry berths 3 cables WSW of the entrance to Wan Chai Basin.

13.87

Victoria Basin (22° 17′·0 N, 114° 09′·8 E) and HMS *Tamar* W of it form the Naval Base. The entrance to the basin is 52 m wide and has a least depth of 8·9 m: the basin is dredged to 7·4 m. There are depths of 5·9 m to 8·0 m at the berths inside the basin and 7·4 m to 8·2 m on the walls outside the basin. There is a signal station on the W entrance point: local storm signals are shown. Vessels must obtain permission from the Naval Base Operations Room before entering or leaving the basin.

There is an E-going set across the entrance, which is strongest 2 to 3 hours after HW.

Charts 3279, 1459

13.87a

Numerous pipelines and cables are laid across the harbour from the S shore. Their positions and, in some cases, prohibited anchorages are shown on the chart. Vessels are advised to avoid anchoring in this area except in the charted anchorages.

An immersed tube tunnel is under construction (1987) ENE from a position ¾ mile NW from Aldrich Bay.

Buried tunnels cross the harbour to Kowloon from Kellett Island (13.86) and from a point ¾ mile W.

Chart 3279

North side of the harbour

13.88

Between Siu Chau Wan (13.52) and a point ¾ mile NW there are two bays. **Tsau Wan,** the SE bay, is a **typhoon shelter** and is protected by a breakwater, which extends SE from the NW entrance point. Light-beacons stand on the breakwater head and on the SE entrance point.

There is a ferry pier close NW of Tsau Wan.

There are shipyards in **Kwun Tong Tsai Wan,** a larger bay 4 cables NW of the ferry pier.

Lei Yue Mung Light-beacon (white post) stands on a pinnacle rock, with a least depth of 2·7 m over it, situated 4 cables NW of Siu Chau Wan and 1½ cables offshore.

Kwun Tong Terminal (22° 18′·4 N, 114° 13′·3 E) stands on reclaimed land nearly 1¼ miles NW of Siu Chau Wan. Tankers up to 174 m long drawing 11·0 m berth at a T-headed jetty on the SW side of the reclaimed land. There are lighted warping buoys NW and S of the jetty.

There are ferry piers at Kwun Tong town NW of the terminal.

Kwun Tong typhoon shelter lies between Kwun Tong and the NE side of the airport runway. It is protected by a breakwater extending from the Kwun Tong shore close NW of the ferry piers and by a detached breakwater. Lights are exhibited from the breakwater heads. A line of dolphins extends ¼ mile NW from the detached breakwater.

Kowloon Bay is the area in the N part of the harbour between Kwun Tong and the E side of the Kowloon peninsula. The airport runway extends 1½ miles SE into the bay from **Hong Kong International Airport** (Kai Tak).

A **prohibited area** is situated S of the SE end of the airport runway. The SW limit of this area is marked by Nos 3 and 5 Eastern Fairway Light-buoys (13.84), and the E limit by PA Light-buoy (special), moored 5 cables SE of the end of the runway. Except with the permission of the Direcor of Marine no vessel is allowed to enter this area, and to prevent vessels passing through it, a line of seventeen dolphins with wire rope barriers secured

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between them has been erected on the axis of the runway and extending 5 cables SE from it.

Except with the permission of the Director of Marine no vessel with a mast or superstructure height exceeding 30·5 m may enter that part of Kowloon Bay adjacent to the runway lying to the NW of the prohibited area.

A **restricted area** extends SE from the limit of the prohibited area to the E harbour limit in Lei Yue Mun. Except for vessels with a mast or superstructure height of less than 30·5 m proceeding to or from Kwun Tong terminal, the permission of the Director of Marine is required before a vessel may enter this area. See 13.53 and the *Admiralty List of Radio Signals Vol 6* for regulations for vessels entering Hong Kong Harbour through Lei Yue Mun.

13.88a

Eastern Quarantine and Immigration Anchorage (13.95) is situated W of the prohibited area. Vessels approaching the anchorage from E must pass S of No 5 Light-buoy to avoid entering the prohibited area.

Charts 1459, 3279

13.89

On the W side of Kowloon Bay 4 cables N of the W entrance point (22° 18′·2 N, 114° 11′·5 E) there is a power station with a large number of chimneys of which seven are particularly prominent.

There are ferry piers ½ mile N of the power station.

Chart 1459

Hung Hom Wan is entered W of the W entrance point of Kowloon Bay. There is a ferry pier at the head of Hung Hom Wan. Kowloon Railway Station is on the W side of the bay and a light is exhibited from a white column on the end of a pier extending S from the station.

In 1986 reclamation of a large area in the W part of Hung Hom Wan was in progress.

13.90

Kowloon Point (22° 17′·7 N, 114° 10′·0 E) is the SW extremity of the Kowloon peninsula. Star ferry piers project from the point. A conspicuous clock tower, at which storm signals are shown, stands close W of the point and a planetarium dome, which is also conspicuous, stands 1½ cables ENE of the clock tower.

13.91

Tai Pau Mai (Blackhead Point), the SE extremity of the peninsula, is situated 4 cables E of Kowloon Point. Storm signals are shown at a flagstaff on Blackhead Hill 1½ cables NNW of Tai Pau Mai. The Royal Observatory, at which there is a dome, marked by a red obstruction light, is situated 3½ cables N of Blackhead Hill.

Several **submarine cables** and **pipelines** are laid S from the peninsula to Hong Kong Island. A **cable area** extends SW from Kowloon Point to the island and a **prohibited anchorage** protecting gas pipelines extends SSE from the peninsula to Kellett Island (13.86).

A railway tunnel and a road tunnel cross the harbour from positions 2 cables E and 7½ cables ENE of Kowloon Point. A conspicuous neon sign CITIZEN is located on the ventilation shaft at the N end of the latter tunnel.

13.92

Ocean Terminal (22° 17′·8 N, 114° 09′·8 E) is situated on the W side of the peninsula close N of Kowloon Point. It is 380 m long and 75 m wide and has three decks. The outer part of the S side of the terminal is dredged to 10·4 m (1986).

Nos 3, 4 and 5 Piers are situated between Ocean Terminal and South Camber, 3 cables N. In 1987 work was in progress at the China Ferry Terminal at No 5 Pier.

North Camber entered ½ mile N of Kowloon Point contains the Government Dockyard. Lights are exhibited from each side of the entrance.

Chart 3279

13.93

Yau Ma Tei typhoon shelter (22° 18′·8 N, 114° 09′·6 E), ½ mile NNW of North Camber, is protected by a detached breakwater with entrances at each end. A light is exhibited from each side of each entrance. The shore side of the shelter is a public cargo working area.

Local storm signals are displayed at Yau Ma Tei.

Yau Ma Tei Anchorage is situated between 2 cables and 8 cables W of the breakwater. Anchoring is prohibited in a cable area between the breakwater and the anchorage and in a corridor between the peninsula and Ngong Shuen Chau (13.69), N of the anchorage.

A light-beacon marks the end of a sewer outfall 3 cables NW of the N entrance to Yau Ma Tei typhoon shelter.

BERTHS AND SIGNALS

Charts 1459, 3279, 3280

Moorings

13.94

Vessels are berthed under the superintendence of the Marine Department and a large number of clump block and chain moorings are maintained.

Class A buoys are suitable for vessels up to 183 m in length. They have 90 ton clump blocks; they are painted white with red and white sectors on top and the letter and number in black; they are laid 425 m apart. Class B buoys are suitable for vessels up to 137 m in length. They have 50 ton clump blocks; they are painted black with the letter and number in white; they are laid 334 m apart.

A number of class A and B buoys are specially fitted for use during typhoons. Up to date information about these can be obtained from the Marine Department.

When securing to these buoys in normal weather conditions it is permissible to drop an anchor if required at a distance of not less than 15 m from the buoy. In strong winds at typhoon mooring buoys vessels may drop anchor under foot in order to minimise sheering, in such a way as not to impair the efficiency of the mooring. The mooring buoys in the naval mooring area are of the two or three-legged type and the use of an anchor when securing to these buoys is not allowed.

All ships are required to secure to Marine Department mooring buoys using their own chain cables, which may be veered to 1 shackle (27 m) on the windlass.

Anchoring is prohibited without the permission of the Director of Marine in the Southern, Northern, Central, Eastern and Hung Hom Fairways or in the direct approaches thereto.

Anchorages

13.95

Quarantine anchorages. Western Quarantine and Immigration Anchorage (22° 19′·0 N, 114° 06′·1 E) (13.68a) is situated on Kellett Bank ¾ mile S of Tsing Yi.

Eastern Quarantine and Immigration Anchorage (22° 18′·2 N, 114° 12′·2 E) (13.88a) is situated ½ mile N of Pak Kok (North Point).

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Health and immigration facilities are available day and night in the former anchorage and from 0630 to 1800 in the latter.

Dangerous goods anchorages. The following anchorages are reserved for vessels carrying dangerous goods:

Pun Shan Anchorage (22° 19′ N, 114° 04′ E) (13.76).

Western Dangerous Goods Anchorage (22° 19′ N, 114° 07′ E) (13.68a).

Tsuen Wan Anchorage (22° 22′ N, 114° 06′·5 E) (13.81).

Tseung Kwan O Anchorage (22° 17′·5 N, 114° 15′·2 E) (13.47).

Leung Shuen Wan Hoi Anchorage (22° 20′·7 N, 114° 20′·3 E) (chart 3612) (14.11).

For specified anchorages see 13.4a.

Large naval vessels or fleet auxiliaries occasionally anchor W of the fairway between 6 cables ENE and 1½ miles N of Kau Yi Chau (13.19) or E of the fairway 3 cables S of the Western Quarantine and Immigration Anchorage (13.68a).

Berths

13.96

The principal alongside berths for ocean-going vessels are:

Ocean Terminal (13.92).

Kwai Chung Container Terminal (13.74b).

Tanker berths at Ap Lei Chau (13.30), Tsing Yi (13.74, 13.75, 13.81) and Kwun Tong (13.88).

The best time for berthing at Ocean Terminal is from ½ hour before to 3 hours after LW on the S side and from 3 hours before to ½ hour before LW on the N side.

Berthing signals

13.97

A signal consisting of the Answering pennant above the following International Code flags indicates the berth to be occupied by a vessel. This signal should be flown by all vessels under way in Hong Kong waters except for those plying solely within the colony.

Berth	*Signal*
Ocean Terminal (13.92)	OT
Shell Wharf, Kwun Tong (13.88)	KT
Shell Wharf, Ap Lei Chau (13.29)	AP
Hong Kong Oil Co Wharf, Tsuen Wan	TW
Caltex Wharf, Tsuen Wan	TW
Hong Kong Breweries Wharf, Sham Tseng (13.56)	SW
Hong Kong United Dockyards Wharf, Hung Hom	KD
China Resources Wharf, Ngan Ying Chau (13.81)	NY
China Resources Wharf, Chai Wan	CW
China Merchants Wharf, Kennedy Town	CM
Cement Wharf, Pok Liu Chau (13.25)	FE
Mobil Wharf, Tsing Yi	MO
Caltex Wharf, Tsing Yi (south side)	ET
Caltex Wharf, Tsing Yi	CO
Esso Wharf, Tsing Yi (13.74)	EO
Hong Kong Oil Wharf, Tsing Yi	GO
Feoso Wharf, Tsing Yi	FO
Kwai Chung Terminal 1	KC1
2	KC2
3	KC3
4	KC4
5	KC5
6	KC6
Pun Shan Dangerous Goods Anchorage (13.76)	PS
Berth	Signal
Western Dangerous Goods Anchorage (13.68a)	WE
Western Quarantine Anchorage (13.68a)	WQ
Kellett Bank Anchorage	BA
Yau Ma Tei Anchorage (13.93)	YT
Yam O Bay Anchorage (13.57)	OA
Tolo Harbour Anchorage (14.26)	TA
Sham Shui Po Anchorage (13.72)	SA
Tseung Kwan O (Junk Bay)	JA
Rocky Harbour Anchorage (14.11)	RH
Sok Kwu Wan Anchorage (13.25)	PA
Laid up ship anchorage, N of Tai Yue Shan (12.34)	LA
Naval Base	NB
Hong Kong—Macau ferry terminal (13.68)	MW
Lok On Pai desalination plant (12.35)	SD
Hong Kong Electric Co Wharf, Po Lo Tsui (13.21a)	LE
China Light and Power Co Wharf, Tap Shek Kok (12.37a)	TE
China Cement Co Wharf, Tap Shek Kok (12.37a)	TC
Apple Floating Dock, Tsing Yi	AD
Whampoa Floating Dock, Tsing Yi	WD
Taikoo Floating Dock, Tsing Yi	TD
Yiu Lian No 1 Floating Dock, Tsing Yi	YD1
Yiu Lian No 2 Floating Dock, Tsuen Wan	YD2
'A' class mooring buoy	A
'B' class mooring buoy	B
Naval mooring buoy	N (followed by buoy no)

Typhoon shelters

13.98

The following are designated typhoon shelters:

Hueng Kong Tsai Wan (13.35).

Chai Wan (13.50).

Ngong Shuen Chau (13.71).

Rambler Channel (13.83).

Aldrich Bay (13.85).

Tung Lo Wan (13.86).

Tsau Wan (13.88).

Kwun Tong (13.88).

Yau Ma Tei (13.93).

Sam Nga Hau (14.7).

Sam Mun Tsai (14.28).

REGULATIONS

Regulations for navigating in principal fairways

13.98a

The *International Regulations for Preventing Collisions at Sea (1972)* are applicable to all vessels navigating in Hong Kong waters except that, by local regulation, any vessel proceeding along, as opposed to crossing, any of the principal fairways, shall have right of way over any vessel proceeding across such fairway.

Extracts from port regulations

13.99

The following are extracts from the port regulations:

1. The depositing of rubbish, oil or other substances into the waters of the harbour is prohibited.

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2. No vessel shall, in any part of the colony emit smoke (including soot, ash, grit and gritty particles) in such quantities as to be a nuisance.

3. Any vessel to which the International Code signal L is made by flag or sound or by flashing lamp from a Marine Department, Police or Revenue Department launch, or a Government signal station, shall stop until authorised to proceed.

4. Any vessel other than one solely within the waters of the Colony, shall

(*a*) when under way in the waters of the Colony between sunrise and sunset, keep her identification flags hoisted and also fly, well clear of the identification flags, the appropriate berthing signal.

(*b*) when under way in the waters of the Colony between sunset and sunrise, identify herself, if so required, to any vessel making the International Code signal K and also if entering or leaving the waters of the Colony, identify herself to either the signal station on Waglan Island or on Tsing Chau.

5. Within the limits of Victoria Harbour, no vessel shall proceed at a speed exceeding the following:

(*a*) Vessels between 15 and 60 m overall length 10 knots.

(*b*) Vessels over 60 m overall length 8 knots.

6. A vessel intending to leave a berth during daylight shall hoist her signal letters at least 30 minutes before departure.

13.100

Quarantine regulations. On arrival all vessels shall proceed to a quarantine anchorage unless pratique has been granted by radio.

Pratique may be obtained by radio if:

(*a*) The vessel has not called at a smallpox or plague infected port within 14 days of arrival in Hong Kong.

(*b*) The vessel has not called at a cholera infected port within 5 days of arrival in Hong Kong. If the vessel has called at a cholera infected port within 5 days of arrival in Hong Kong the Port Health Officer has discretion to grant radio pratique.

(*c*) There are not more than 24 passengers on board at the time of arrival.

(*d*) There are more than 24 passenger and a ship's surgeon on board, at the time of arrival.

(*e*) The master signals the following information not more than 30 hours and not less than 8 hours before arrival:

(i) Ports of call and dates of departure during the 14 days prior to arrival.

(ii) Number of passengers and crew on board.

(ii) A statement that all persons on board are healthy and have valid International Vaccination certificates against smallpox.

(vi) A statement indicating whether any case of infectious disease has occurred on board during the voyage.

(v) Whether any person on board is sick.

(vi) The date of issue of the deratting or deratting exemption certificate.

(vii) Whether the vessel is an oil tanker, cargo container or LASH ship.

(viii) Whether foodstuff is carried as cargo.

Ships granted radio pratique should, when entering Hong Kong waters, display by day International Code flags TO or at night three white lights disposed vertically.

No vessel which is compelled to leave the quarantine anchorage from stress of weather shall communicate except by signals with the shore or with any other vessel, and such vessels shall return to the quarantine anchorage immediately such stress of weather has subsided: Provided that in case of stress of weather involving probable danger to the vessel, the vessel may remove for a time, but shall be deemed, nevertheless, for all purposes to be subject to all other regulations applicable to such vessels.

13.101

Dangerous goods regulations. 1. It shall not be lawful for the master of any vessel carrying explosives as cargo to anchor within 450 m of any other vessel or of any Government Explosive Depot without the permission of the Director of Marine, and whilst engaged in the transhipment of explosives shall display an International Code flag B at the highest masthead by day and shall by night show an all round red light at a height not less than 6 m above the uppermost deck. If engaged in the transhipment of petroleum products having a flashpoint of less than 65½°C, in lieu of the International Code flag B she shall fly by day a red flag of not less than 1 m square with a white circular centre 0·15 m in diameter, at the fore truck and shall also fly the International Code Signal SU7.

The above signals are to be displayed until the Director of Marine is satisfied that the holds are clean and ventilated.

2. Vessels carrying dangerous goods, on arrival at Hong Kong must anchor in one of the prescribed dangerous goods anchorages and must obtain permission from the Director of Marine before going alongside or shifting berth.

3. Except with the permission of the Director of Marine no vessel carrying dangerous goods in category 5, classes 1, 2 or 3, shall enter or remain in that part of Hong Kong Harbour which is bounded by:

(i) To the E by a line drawn from a position on Hong Kong Island near Pak Kok (North Point) (22° 17′·7 N, 114° 11′·9 E) in a 334° direction to Kowloon peninsula.

(ii) To the W

(*a*) from a position on Hong Kong Island in 22° 16′·6 N, 114° 06′·8 E in a 329° direction to the W side of Tsing Chau (Green Island) and thence on a bearing of 026° to the W side of Ngong Shuen Chau (Stonecutters Island).

(*b*) from a position on the E side of Ngong Shuen Chau in 22° 19′·4 N, 114° 08′·7 E on a 000° bearing to the mainland.

4. Except with the permission of the Director of Marine, upon the hoisting of any local storm signal other than No 1 or No 3, every vessel having dangerous goods in categories 1 or 5 on board shall proceed outside the harbour, and remain outside until such signal is lowered.

5. The oil wharves at Kwun Tong, Ap Lei Chau, and Tsing Yi shall be places to which vessels carrying dangerous goods may proceed with the permission of the Director of Marine; otherwise such goods must be discharged or loaded in one of the dangerous goods anchorages.

All vessels, with keels laid on or after 12th April, 1972, which are carrying chemicals in bulk, must be in possession of a Certificate of Fitness in accordance with the IMO-adopted Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in bulk, before such vessels enter or leave Hong Kong waters.

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13.102

Yachts. The masters of all yachts must report their arrival and departure as follows:

(*a*) An arrival from a place outside the waters of the Colony must be reported to the Director of Marine within 24 hours.

(*b*) A departure to a place outside the waters of the Colony must be reported to the Director of Marine.

13.103

Signals displayed by vessels engaged in dredging. A vessel engaged in salvage, dredging, boring or in repair of moorings shall exhibit the lights and shapes prescribed in the *International Regulation for Preventing Collisions at Sea (1972)*.

13.104

Towing sound signals. The following towing sound signals are in general use in Hong Kong:

Signal on siren or whistle	*Meaning*
—	Tow ahead.
— •	Tow to starboard.
— • •	Tow to port.
• • •	Tow astern.
— —	Stop towing.
— • • • •	Let go the tow.
• • • •	Steering tug cast off and take up stern towing position.

Any signal intended for the after tug only when three are engaged alongside or for the after two tugs when four are engaged alongside, will be preceded by • —.

The above signals will only be used when VHF RT is not available.

13.105

Typhoon season regulations (*15th May to 31st October*).

1. Every person in charge of a vessel shall comply with the requirements of the Director of Marine, who may order such vessel to anchor or secure in any place he may direct, or prohibit anchoring or securing in any place and who may order the vessel to be removed to another place within the Colony.

2. Anchoring without the permission of the Director of Marine is prohibited in the approaches to the airport in Kowloon Bay, except when a typhoon signal, other than Nos 1 and 3, is hoisted.

3. Except with the prior permission of the Director of Marine, no dead ship shall be anchored, moored or secured at any place within the waters of the Colony nor except with such permission, shall any repairs be undertaken upon any ship which is so anchored, moored or secured which will result in such ship becoming a dead ship. The expression 'dead ship' means any ship exceeding 50 m in length, other than a laid-up ship, which is unable to proceed under its own power; unable to manoeuvre with its own steering gear; unable to work its own anchors; or unable to maintain the watertight integrity of the ship.

4. Upon a local storm warning signal being hoisted vessels at Government buoys shall clear away anchors and cables and bring the main engines to a state of readiness for full power and vessels shall, if so directed by the Director of Marine, leave their mooring buoys.

5. Upon a local storm signal, other than No 1 being hoisted, vessels at Government buoys not being special typhoon moorings shall, within 2 hours move to a typhoon anchorage or to special typhoon moorings. The Director of Marine may in his discretion order a vessel at a special typhoon mooring to leave that mooring.

6. Any ship within the waters of the Colony shall have on board at all times such number of crew as, in the opinion of the Director of Marine is qualified to and capable of carrying out all the duties which may reasonably be required to ensure the safety of the ship having regard to the circumstances pertaining thereto. Masters or agents requesting a buoy are advised to ascertain whether it is considered safe for use under typhoon conditions.

7. Nothing in these regulations shall prevent any vessel which is already at a typhoon buoy from shifting to an anchorage if such is preferred.

FACILITIES AND SERVICES

13.106

Facilities. There are five large wharf and godown (warehouse) companies and numerous other godowns of modern design providing ample storage facilities for the port.

There are several long established stevedoring contractors in the port who also supply lighters for the transport of cargo.

More than 20 tugs of up to 3000 hp are available for harbour and salvage duties: except in emergency at least 3 hours' notice is required.

There are several fire floats.

Hull and machinery repairs of all kinds can be carried out. There are several floating docks.

There are cranes or specialised cargo handling equipment at all berths. There are heavy lift floating cranes of 100 ton and 250 ton capacity.

Deratting can be carried out: see 1.92.

There are many Government and private general hospitals.

13.107

Supplies. All types of fuel are available for commercial bunkering and can be obtained from alongside berths at the oil installations or from harbour oilers. Coal is obtainable by lighter.

Fresh water is obtainable but supply is sometimes limited, depending on the storage levels in Hong Kong's reservoirs. Water boat services may be suspended after Local Typhoon Signal No 1 is hoisted.

All types of stores and fresh provisions are available.

13.108

Communications. Hong Kong maintains regular communication by sea and air with all parts of the world. Kowloon is connected by railway with Guangzhou.

Hong Kong is connected to all parts of the world by telegraph, telex, and radio-telephone.

There is a coast radio station at Hok Tsui (Cape d'Aguilar).

There is a port radio station at Hong Kong.

Signal stations for communication between ship and shore are maintained at Waglan Island (13.39), Tsing Chau (Green Island) (13.67) and the Port Control Office (13.68).

13.109

Climate. In spite of its geographical position in the tropics, Hong Kong experiences a variety of weather, although the latter is governed by monsoons.

The winter monsoon blows from the N or NE and usually begins in September, prevailing until mid-March. Early winter is the most pleasant time of the year when the weather is normally dry and sunny. The summer monsoon blows from the S or SW and can occur from mid-April to September, although it is not as persistent as the winter monsoon. Summer is the rainy

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season when the weather is almost continuously hot and humid.

Climatic table. See 1.131.

13.110

Weather reports are displayed, daily, at the Director of Marine's office, the General Post Office, the offices of the cable companies and at the ferry piers.

Reduced visibility. The Marine Department broadcasts, in plain language, reports on reduced visibility in the harbour and approaches as follows.

Visibility	*Report*
Less than 1 cable	Thick fog
Between 1 cable and 10 cables	Visibility in cables
Between 1 mile and 2 miles	Visibility in miles and cables
Between 2 miles and 5 miles	Moderate visibility
Over 5 miles	Good visibility

Typhoons. Hong Kong is very susceptible to typhoons. The official typhoon season is from 15th May to 31st October, although they may occur at any time of the year. The storms may generate over 1000 miles away in the Pacific or they may spring up with little warning less than 400 miles away. Indeed some of the worst storms to have affected Hong Kong have intensified within the last 100 miles.

Storm warning bulletins are issued at six hourly intervals by the Royal Observatory whenever a tropical disturbance is located within the area bounded by 10° N and 30° N and 105° E and 125° E; this area covers the majority of the shipping routes radiating from Hong

LOCAL STORM AND MONSOON SIGNALS

Signal	*Display*		*Signification*	
	Day	*Night*		
Stand-by only 1		W W W	A depression or typhoon exists (centred within 400 nautical miles of Hong Kong) which may affect the locality.	
Strong wind 3		G W G	Strong wind (mean wind speed 22–33 knots) expected, which may reach gale force later.	The hoisting of this signal normally gives about 12 hours warning of a strong wind in Hong Kong Harbour.
NW Gale 8 NW		W G G	Gale expected (mean wind speed 34 knots and upwards) from the NW quadrant.	These four signals are equally significant with regard to wind speed. Normally, the first of these signals is hoisted about 12 hours before the gale affects Hong Kong Harbour.
SW Gale 8 SW		G W W	Gale expected (mean wind speed 34 knots and upwards) from the SW quadrant.	
NE Gale 8 NE		G G W	Gale expected (mean wind speed 34 knots and upwards) from the NE quadrant.	
SE Gale 8 SE		W W G	Gale expected (mean wind speed 34 knots and upwards) from the SE quadrant.	
Increasing gale 9		G G G	Gale expected to increase.	Generally, the sustained wind speed will reach 48–63 knots within 3 hours of this signal being hoisted.
Typhoon 10		R G R	Typhoon wind expected (mean wind speed 64 knots and upwards) from any direction.	Signal hoisted as soon as there are definite indications that the sustained wind speed in Hong Kong Harbour is likely to exceed 64 knots.
Strong Monsoon		W G W	Strong or gale monsoon wind (mean wind speed 22–35 knots) in Hong Kong area.	

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Kong. These bulletins refer to tropical disturbances only.

Storm signals. The local storm and monsoon signals illustrated in the table on page 265 are used in Hong Kong waters and are displayed at many locations which are shown on the charts.

Signal No 1 is a cautionary or stand-by signal, and is hoisted when a tropical disturbance exists which is a potential threat to Hong Kong, although at that early stage it is impossible to forecast with any certainty whether gales or typhoon winds may actually occur in the area. Signal No 8 conveys definite warning of a gale from a specified direction. Signal No 9 is not necessarily used if conditions warrant the display of Signal No 10 as soon as it is evident that the gale will increase.

Precautions. When Signal No 1 is displayed, crews of vessels in the harbour should be ordered to stand-by, as also should any staff required to carry out safety precautions on land. Any preparations which may take many hours to complete should be put in hand. Sailing craft at any distance from the land should return to harbour.

On display of Signal No 3, all safety precautions should be put in hand at once; it would be extremely dangerous to await the display of Signal No 8 before taking precautionary action.

See also typhoon season regulation described in 13.105.

13.111

Local storm warning signals, in full, are displayed as follows:

Hueng Kong Tsai Wan Marine Licensing Station (13.35).
Cheung Chau Aeronautical Meteorological Station (13.12).
Tsing Chau Signal Station (13.67).
Lau Fau Shan Police Station (12.44).
Marine Department Port Communication Centre (13.94).
Sai Kung Police Station (14.9).
Sha Tau Kok Police Post (14.35).
Shau Kei Wan Marine Licensing Office (13.84).
Stanley Police Station (13.27).
Tai Lam Chung Marine Police Operations Base (14.27).
HMS *Tamar* (13.87).
Yau Ma Tei Public Cargo Working Area (13.92).

13.112

Marine fish culture takes place in the following areas:

Sha Tou Kok (14.32).
Ap Chau (14.32).
Kat O (14.32).
O Pui Tong (14.31).
Sai Lau Kong (22° 32′ N, 114° 17′ E).
Wong Wan (14.29).
Tap Mun (14.19).
Kau Lau Wan (14.18).
Sham Wan (22° 26′·5 N, 114° 21′ E).
Lo Fu Wat (14.22).
Yim Tin Tsai (14.27).
Yung Shue Au (22° 26′ N, 114° 17′ E).
Leung Shuen Wan (14.11).
Tiu Cham Wan (22° 21′·5 N, 114° 19′·5 E).
Tai Tau Chau (14.13).
Kai Lung Wan (22° 22′ N, 114° 18′ E).
Kau Sai (14.8).
Ma Nam Wat (22° 21′·5 N, 114° 16′ E).
Po Toi O (14.4).
Tin Ha Wan (22° 17′ N, 114° 16′·5 E).
Po Toi (13.37).
Sok Kwu Wan (13.25).
Lo Tik Wan (22° 13′·5 N, 114° 07′·5 E).
Cheung Sha Wan (13.72).
Tai A Chau (12.25).
Shek Miu Wan (13.47).
Ma Wan (13.59).

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CHAPTER 14

CHINA, SOUTH COAST—HONG KONG TO ZHELANG JIAO

APPROACHES TO NGAU MEI HOI AND LEUNG SHUEN WAN HOI

Charts 1916, 1917

Kwo Chau Kwan To

14.1

Kwo Chau Kwan To (Ninepin Islands), a group of uninhabited islands, is situated 4½ miles NNE of Waglan Island (13.38) and 2 miles from the mainland.

Pak Kwo Chau (North Ninepin Island) and **Nam Kwo Chau (South Ninepin Island)** (22° 16′ N, 114° 21′ E), the two largest islands, are separated by a channel 2 cables wide. The S coast of Nam Kwo Chau is a precipitous cliff 116 m high: the N part of this island is lower. **Tai Chau Mei,** 54 m high, lies close off the SW side of Nam Kwo Chau.

Nam Kwo Chau from SE
(Original dated 1981)

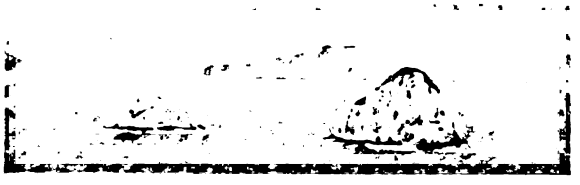
Pak Kwo Chau is 104 m high and has a cleft near its N end. **Sai Chau Mei,** 27 m high, lies close off the SW end of Pak Kwo Chau and **Hok Tsai Pai** lies close off the N end.

A **light** is exhibited from a white tower standing near the N end of Pak Kwo Chau.

Fo Siu Pai (North Rock), 3·7 m high, lies ½ mile NE of Pak Kwo Chau. **Wang Pai,** which dries 1·8 m, lies close ESE of Fo Siu Pai.

Tung Kwo Chau (East Ninepin Island) consists of a group of small islands lying 1 mile E of Pak Kwo Chau. Tuen Chau Tsai, the largest island, shaped like a sugar loaf when seen from NW or SE, is 66 m high.

Shue Long Chau, 26 m high, lies 1 cable WNW of Tuen Chau Tsai and **Lung Shuen Pai,** 6 m high, lies 1 cable SW.



Tung Kwo Chau from SE
(Original dated 1981)

Fo Sui Pai and Tung Kwo Chau are covered by the red sector of the light on Pak Kwo Chau.

One-foot Rock (22° 15′ N, 114° 22′ E), with a depth of 0·3 m over it, lies 6½ cables S of Tung Kwo Chau. Fat Tong Kok (14.3), in line with the S extremity of Nam Kwo Chau bearing 278° clears One-foot Rock to the S.

Caution. The depths in the vicinity of Kwo Chau Kwan To give no indication of approach to these islands, and caution must be exercised in thick weather.

Kwo Chau Kwan To and One-foot Rock are covered by the red sector of Tathong Point Light (13.43).

Chart 1916

Outlying danger

14.2

Victor Rock (22° 18′ N, 114° 26′ E), with a depth of 5·5 m over it and depths of 11 m close around it, lies 4 miles NE of Tung Kwo Chau. The summit of Tung Lung Chau (13.43), in line with the NW extremity of Hok Tsai Pai lying close N of Pak Kwo Chau, bearing 245°, clears Victor Rock to the NW by ½ mile, and the summit of Nam Kwo Chau, bearing 242° and open SE of the SE extremity of Tung Kwo Chau clears Victor Rock to the SE by ¼ mile.

Charts 1916, 1917

14.3

Fat Tong Kok (22° 16′ N, 114° 18′ E), which forms the N entrance point of Fat Tong Mun (13.44), is the SE extremity of Clear Water Bay peninsula extending from the mainland. A range of hills extends the whole length of the peninsula, culminating in **Tiu Yue Yung (High Junk Peak),** 342 m high, situated 2¼ miles NNW of Fat Tong Kok. This peak is remarkable when seen from SE.

14.4

Po Keng Teng (22° 16′ N, 114° 18′ E), 125 m high, is a prominent bluff ½ mile NE of Fat Tong Kok. Ta Tum and Jam Pan Wan are small bays lying S and N respectively of Po Keng Teng. A breakwater extends SE from the N entrance point of Jam Pan Wan.

Ching Chau (Steep Island), 101 m high, lies ½ mile NE of Po Keng Teng. A rock with a depth of 1·8 m over it lies 1 cable W of Ching Chau.

Tsing Shui Wan (Clear Water Bay), which is open to wind and swell from E, is entered between **Shek Mei Tau** 7 cables N of Po Keng Teng and a point ½ mile farther N. **Po Toi O,** a narrow shallow bay, is entered on the S side of Tsing Shui Wan; a jetty, with a depth of 1·8 m at its head, is situated on the E side of Po Toi O, 2 cables from its head.

Chart 1916

Tai Lak Lei (Trio Island), a group of three islands, lies 1½ NNE of Ching Chau: the highest is 41 m high.

Ma Pai 8 m high lies ¼ mile NW of Tai Lak Lei and **Alexander Rock,** with a least depth of 5·5 m over it, lies ¼ mile NE of the same island.

Pak Pai (Duck Rocks), 2·4 m high, lies at the N end of some detached islets and rocks extending N from a point on the coast W of Tai Lak Lei.

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Ngau Mei Chau *Kiu Tsui Chau*

Lak Lei Tsai

(14.5) Entrance to Ngau Mei Hoi from SE
(Original dated 1981)

Chart 3612

Lak Lei Tsai (Table Island) (22° 18′·8 N, 114° 19′·0 E), 28 m high, situated ½ mile ENE of Pak Pai, lies in the approach to Ngau Mei Hoi.

Ngau Mei Hoi

14.5

Ngau Mei Hoi (Port Shelter), which affords good anchorage to vessels of any size, is entered from SE between Ma Tsai Pai (22° 19′·4 N, 114° 19′·5 E) (14.9) and **Lung Ha Wan,** a point on the mainland 1½ miles SW. Lak Lei Tsai and Pak Pai, which lie on the SW side of the entrance, are described in 14.4.

Between Lung Ha Wan and **Ngam Tau Sha,** 1 mile NW, there is a bay, the head of which is shallow.

Ngau Mei Chau (Shelter Island), 127 m high, lies 3½ cables NE of Ngam Tau Sha: the channel between them is encumbered by a rocky shoal over which there is a least depth of 6·9 m.

Ngau Tau Pai is an islet 8 m high lying off the SE end of Ngau Mei Chau. **Nan Pai,** a rock with a least depth of 5 m over it, lies near the outer end of a bank with depths of less than 10 m over it which extends 2 cables from the S side of Ngau Mei Chau.

Ho Pai with a depth of 5·5 m over it lies 2 cables W of the W extremity of Ngau Mei Chau.

14.6

Anchorage may be obtained in depths of 15 to 16 m mud, about 8½ cables NW of the N extremity of Ngau Mei Chau.

Pak Sha Wan (Hebe Haven) is entered between **Pak Ma Tsui** (22° 21′·1 N, 114° 16′·4 E), the S extremity of a peninsula extending 1¼ miles S from the mainland, and a point 3¾ cables W. **Pak Ma Tsui Pai,** a rock with a depth of 4·6 m over it, lies 2 cables SSW of Pak Ma Tsui and a bank with depths of less than 10 m over it extends 1 cable farther S.

A light-beacon (white concrete column) stands on Man Tau Tsui on the N side of the entrance to Pak Sha Wan 6 cables NW of Pak Ma Tsui. A light-buoy (S cardinal) is moored 1½ cables WNW of the light-beacon.

There is a large yacht marina in the SW part of Pak Sha Wan and yacht clubs and small craft moorings in the N part.

14.7

On the NE side of the entrance to Ngau Mei Hoi, **Tiu Chung Pai** (22° 19′·6 N, 114° 19′·1 E), 8 m high, lies 4 cables WNW of Ma Tsai Pai (14.9) and close off the SW extremity of Tiu Chung Chau (14.9). **Wong Wan Pai,** a rocky patch with a depth of 10·4 m over it, lies 3½ cables WNW of Tiu Chung Pai.

Tai Pai, a shoal consisting of rock and sand, with a least depth of 2·7 m near its S end, lies near the centre of Ngau Mei Hoi, midway between the N extremity of Ngau Mei Chau and **Tai Ngam Tsui,** the S extremity of Kiu Tsui Chau, 1¼ miles N.

Kiu Tsui Chau (Sharp Island) rises to a sharp summit 134 m high. Between Kiu Tsui Chau and Kau Sai Chau there is a passage from 1 to 3 cables wide, leading to the W end of the channel N of the latter island, which leads from Leung Shuen Wan Hoi (14.9). On the W side of this channel, **Lung Ngan Yuen Tau,** 9 m high, lies 1 cable NE of Tai Ngam Tsui, and close offshore. **Shek Kwu Wan** lies 7 cables N of Tai Ngam Tsui. **Lo Chi Pai,** a rock 0·5 m high, marked by a beacon (red and white chequers; red cylinder topmark) stands near the E extremity of a bank which extends 1½ cables E from Shek Kwu Wan. **Tuen Tau Chau,** 27 m high, and **Ham Lun Kok,** 17 m high, are islets lying close off the NE coast of Kiu Tsui Chau and are separated from it by narrow drying reefs.

Yim Tin Pai a shoal with a least depth of 4·6 m over it lies near the centre of the channel, 1½ cables SE of Tuen Tau Chau.

On the E side of the channel in its N part, **Yim Tin Tsai** (22° 22′·7 N, 114° 18′ E) on which there is a mission with a conspicuous church, is the largest of a number of islets and rocks which lie close off the NW side of Kau Sai Chau. **Shek Chau,** an islet 3 m high, lies on a reef close off the NW end of Yim Tin Tsai; the W extremity of this islet is marked by a **beacon** (black and white chequers; black cone topmark).

Sam Nga Hau typhoon shelter is situated close E of Yim Tin Tsai; it is protected from N by a causeway extending NW and W from the NW side of Kau Sai Chau, and the entrance lies close N of the NE extremity of Yim Tin Tsai. A **light** is exhibited from each entrance point.

Cha Yue Pai, a rocky patch, over which there is a least depth of 3·2 m lies 3 cables N of the N extremity of Kiu Tsui Chau.

14.8

Sai Kung Hoi (Inner Port Shelter) is entered between **Kiu Tau** (22° 21′·9 N, 114° 17′·1 E), an island 28 m high from which a causeway runs NE to Kiu Tsui Chau (14.7), and **Lo Fu Ngam** on the mainland, ½ mile SW. A **light-beacon** stands on **Kiu Tsui Pai,** a reef extending 1 cable SW from Kiu Tau.

Pak Sha Chau, 24 m high, lies ¼ mile off the NW side of Kiu Tsui Chau, on a shallow bank which connects the latter with the mainland NW. A large number of other islets and rocks, both above and below water including

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Yeung Chau and **Cham Tau Chau,** lie on this bank. There is no channel, except for boats, between these islets and rocks.

Anchorage may be obtained in depths of 11 to 13 m, mud, 3 cables SW of Pak Sha Chau.

Sai Kung town (22° 23′ N, 114° 16′ E) is situated on the NW side of Sai Kung Hoi on the N side of a small inlet.

Storm signals. When local storm signals are displayed at Hong Kong, supplementary signals are displayed at Sai Kung police station. See 13.111.

Leung Shuen Wan Hoi

14.9

Leung Shuen Wan Hoi (Rocky Harbour) is entered between **Tiu Chung Chau** (Jin Island), 213 m high, and Fu Tau Fan Chau (14.11), 1¾ miles E.

On the W side of the entrance, **Ma Tsai Pai,** consisting of two rocks close together 11 m high, lies 1½ cables S of Tiu Chung Chau with foul ground, part of which dries 0·3 m, between. A **light** is exhibited from a white concrete column on **Cham Pai,** a drying reef 1½ cables ENE of Ma Tsai Pai. A rock, with a depth of 5·9 m over it, lies ¾ cable SSE of Cham Pai.

See Chau (Bay Islet) (22° 20′·2 N, 114° 19′·9 E), 45 m high, lies ¾ mile NNE of Cham Pai.

Charts 3612, 1916

14.10

Sha Tong Hau Shan (Bluff Island) (22° 19′ N, 114° 21′ E) lies in the entrance to Leung Shuen Wan Hoi: it is 153 m high. The S end of the island is precipitous and **Sha Tong Hau Mei,** the S extremity, is 68 m high.

Wai Kap Pai, a rocky patch with a depth of 2·9 m over it, lies 4 cables NW of the NW extremity of Sha Tong Hau Shan. Shan Chau (below) bearing 121° and open NE of Sha Tong Hau Shan clears Wai Kap Pai to the NE.

Fo Shek Chau (Basalt Island), 172 m high, lies ½ mile ESE of Sha Tong Hau Shan. The S end of the island is precipitous and **Lung Shuen Pai,** the S extremity, is 94 m high. **Shan Chau (Pyramid Rock),** 37 m high, with a rock which dries 1·2 m close N of it, lies close off the E part of the N end of Fo Shek Chau.

Chart 3612

14.11

On the E side of Leung Shuen Wan Hoi **Fu Tau Fan Chau (Town Island),** 67 m high and uninhabited, lies ¼ mile NE of Sha Tong Hau Shan. The entrance to Leung Shuen Wan Hoi from E between Fu Tau Fan Chau to N and Fo Shek Chau and Sha Tong Hau Shan to S is obstructed by a group of islets, the highest of which, **Pin Chau,** is 29 m high. **Wave Rock,** which dries 2·1 m, lies in the channel 3 cables WNW of the W extremity of Pin Chau. A **light** is exhibited from a white column 2·2 m in height on Wave Rock. There are tide-rips in this channel.

Leung Shuen Wan Chau (High Island), the summit of which, **Tai She Teng,** is 275 m high, is uninhabited and lies ½ mile N of Sha Tong Hau Shan. It is separated from Fu Tau Fan Chau by **Sor See Mun,** a narrow channel. A **light** is exhibited from a white concrete tower, 4·1 m in height on the NW extremity of Fu Tau Fan Chau.

Nam Fung Chau (Green Island) (22° 20′·6 N, 114° 21′·0 E), 15 m high, lies ½ mile NNW of the S end of Leung Shuen Wan Chau and close off the coast. **Tong Hau Pai,** a rocky patch with a least depth of 5·0 m over it, lies 2½ cables W of Nam Fung Chau. Between Nam Fung Chau and **She Wan Kok,** a point ½ mile NW, there is a bay in the SW side of Leung Shuen Wan Chau with a shallow cove at its head; on the shores of the cove there are some villages.

Anchorage during the NE Monsoon may be obtained in the entrance to the cove ½ mile N of Nam Fung Chau with a bottom of mud, but the space is restricted owing to below-water rocks.

A **dangerous goods anchorage** is situated 2 cables SW of She Wan Kok; see also 13.95.

14.12

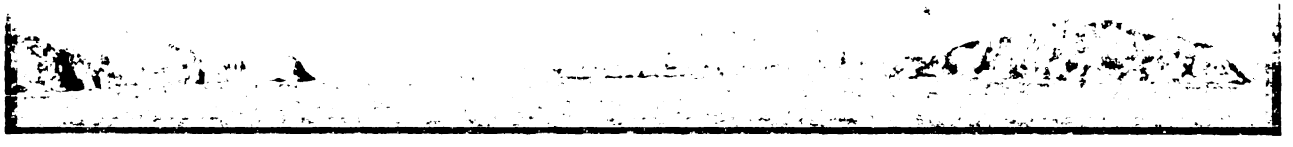
On the W side of Leung Shuen Wan Hoi, **Kau Sai Chau,** 214 m high, lies close N of Tiu Chung Chau (14.6). **Yat Chap Mo** (22° 21′·1 N, 114° 19′·6 E), 6 m high, lies 6 cables NNE of the S extremity of Kau Sai Chau, and ¾ cable off the coast to which it is connected by a reef.

Anchorage during the SW Monsoon may be obtained off the W side of Leung Shuen Wan Hoi over a mud bottom N of See Chau where better shelter will be found than in the anchorage on the E side of the harbour.

14.13

On the E side of the harbour, between **Datum Point** (22° 21′·4 N, 114° 20′·1 E), situated ½ mile NW of She Wan Kok, and a point 2 cables NNW, there is a bay with **Tai She Wan** village on its NE shore. **Kei Yan Shek,** the W extremity of Leung Shuen Wan Chau, lies 7 cables NW of Datum Point. A **light-beacon** (white concrete tower) stands on Kei Yan Shek.

Tau Tau Chau (Urn Island), 61 m high and uninhabited, lies 2 cables off the NE side of Kau Sai Chau (14.11) with several islets and below-water rocks between. Lo Fu Tiu Pai, which dries 1·8 m (6 ft), lies on a reef 1½ cables SW of the S end of Tai Tau Chau. A beacon (concrete tower; black, red and white bands; black spherical topmark) 2·5 m in height, stands on Lo Fu Tui Pai.



(14.11) E entrance to Leung Shuen Wan Hoi from SE
(Original dated 1981)

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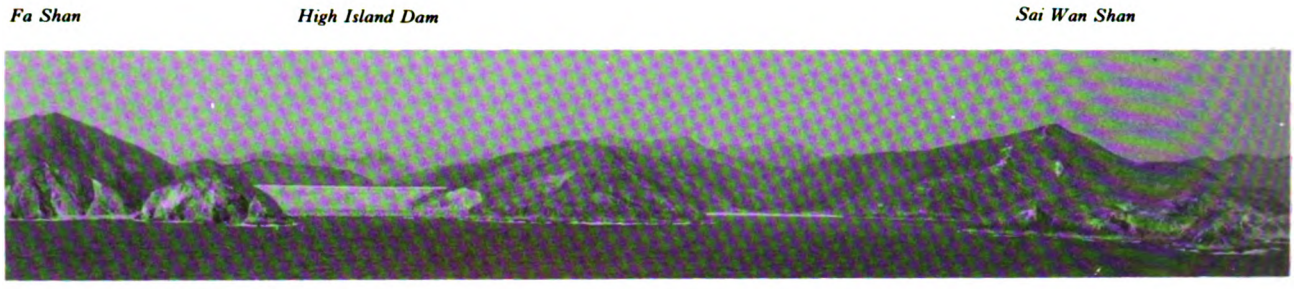


(14.15) High Island Dam from ESE
(Original dated 1981)

Leung Shuen Wan Hoi to Tai Pang Wan

14.14

Wang Chau Kok (22° 20′ N, 114° 23′ E), the E extremity of **Wang Chau (Hole Island),** which is perforated, is situated ¾ mile ENE of Shan Chau (14.10). Wang Chau is 91 m high, bare and precipitous; its NW end is separated from the E end of Fu Tau Pun Chau (14.11) by a channel 1 cable wide which is not navigable. **Kong Tau Pai,** 11 m high, with a rock which dries 0·6 m 1 cable SE of it, lies 4 cables NNE of the N extremity of Wang Chau.

Wong Nai Chau, 16 m high, lies 3 cables NNE of the NE extremity of Fu Tau Pun Chau. **Po Pin Chau** (22° 21′·6 N, 114° 22′·6 E), 47 m high and cliffy, lies close off the E extremity of Leung Shuen Wan Chau and 1 mile NE of Wong Nai Chau.

14.15

High Island Dam extends across **Kwun Mun** between Po Pin Chau and **Biu Tsim Kok,** 3 cables NE, enclosing High Island Reservoir.

Long Ke Wan, the bottom of which consists of sand, is entered between Biu Tsim Kok and **Fan Tsang Chau (Conic Island)** (22° 21′·9 N, 114° 23′·4 E), 52 m high, 6 cables E. There is a sandy beach at the head of this bay.

A **light** is exhibited from a white column on the NW extremity of Fan Tsang Chau.

Charts 1915, 1916

Kei Kok Tau with a small inlet close W of it, lies ¾ mile N of Fan Tsang Chau. **Boole Rock,** with a depth of 7·3 m over it, lies 1½ cables NE of Kei Kok Tau and the same distance offshore. **Yin Tsz Ngam** lies 6½ cables N of Kei Kok Tau. **Tai Yue Ngam Teng (Ping Hill),** 229 m high and prominent from SE, lies ¼ mile SW of Yin Tsz Ngam.

Chart 1915

Tai Long Wan

14.16

Tai Long Wan is entered between Yin Tsz Ngam and Tai Long Tsui, 1¾ miles NNE. In the vicinity of this bay, **Sai Wan Shan,** 312 m high, situated ¾ mile W of Tai Yue Ngam, and **Tai Mun Shan,** 368 m high, situated 2¼ miles W of Tai Long Tsui, are both prominent.

Tai Long Wan is open E and a heavy swell sets in except during the summer months. **Tsim Chau,** a group of three islets, the highest of which is 50 m high, lies near the middle of the bay, ½ mile offshore. **Mong Yue Kok,** a small projection, divides the head of the bay into two parts. Foul ground extends 1½ cables offshore in the N part of the bay; in the S part, ½ mile S of Mong Yue Kok, there is a sandy inlet with **Sai Wan** village at its head, where landing can be effected.

Large numbers of fishing stakes are reported to exist in the S approach to Tai Pang Wan from 1½ to 2½ miles off the entrance to Tai Long Wan.

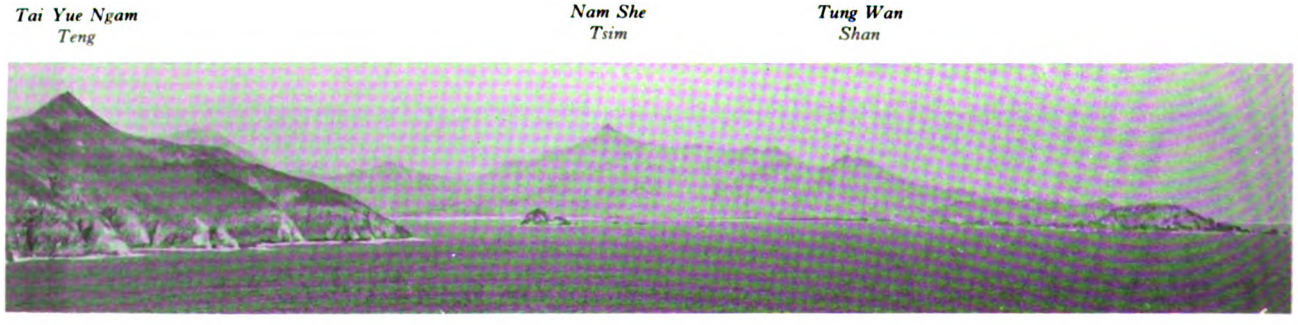
Tai Long Tsui (Fung Head) (22° 25′ N, 114° 24′ E) is 104 m high, rocky and steep-to. **Cheung Tsui Chau,** an islet 14 m high, lies close E of the headland.

TAI PANG WAN

Chart 939

14.17

Tai Pang Wan (Mirs Bay) is entered between Tai



(14.16) Tai Long Wan from SSE
(Original dated 1981)

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Long Tsui and Dapeng Jiao (Chun Pei Ngaam) (14.36), 6 miles ENE.

There is secure anchorage in this bay during a typhoon, there being well sheltered anchorages for all classes of vessels. Tai Tan Hoi Hap (14.19) is considered the best; Tai Po Hoi (14.26) is also good, and fairly good shelter may be obtained close NE of Ping Chau (14.37) when the wind is from S.

The land in the vicinity of Tai Pang Wan is high. **Ma On Shan** (22° 25′ N, 114° 15′ E), 700 m high, and **Nam She Tsim,** 466 m high, situated 2 miles NW of Tai Long Tsui, are conspicuous. **Wu-t'ung Shan,** 944 m high, situated at the NW end of the bay 2 miles inland, and **Mei-shan Chien,** 755 m high, 3¾ miles NE of Wu-t'ung Shan are prominent.

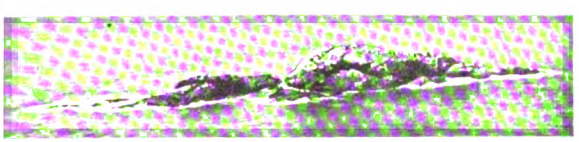
Marine fish culture takes place at a number of places in Tai Pang Wan; these are listed in 13.112.

Chart 1915

14.18

On the SW side of Tai Pang Wan **Tuen Tsui (Bate Head)** lies 1½ miles N of Tai Long Tsui. **Wo Sheung Chau,** 26 m high, and **Ngau Shi Pui,** 15 m high, lie close E and 1½ cables SSE of Tuen Tsui.

Shek Ngau Chau (Gau Tau) (22° 28′·0 N, 114° 25′·6 E), rocky and 26 m high, lies in the middle of the entrance to Tai Pang Wan, 2¼ miles NE of Tuen Tsui. A **light** is exhibited from a white square concrete tower on the summit of Shek Ngau Chau.



Shek Ngau Chau from ESE
(Original dated 1981)

A spoil ground lies 1½ miles N of Shek Ngau Chau: its corners are marked by light-buoys (special).

Breaker Reef, the centre portion of which dries 1·5 m and on which the sea generally breaks, lies ½ mile SW of Shek Ngau Chau.

Wong Mau Chau (South Gau), 18 m high and surrounded by foul ground which extends 2 cables from its W and SE sides, lies ¾ mile NNW of Tuen Tsui. A **light** is exhibited from a white square concrete tower on Wong Mau Chau.

Anchorage during S winds may be obtained on mud in a bay situated 1¼ miles WSW of Wong Mau Chau (22° 27′·1 N, 114° 23′·5 E). **Nam She** village lies at the head of the bay.

Kau Lau Wan Tsui (Boulder Point) (22° 27′·7 N, 114° 21′·5 E), the N extremity of a peninsula which rises to an elevation of 117 m, lies 1½ miles NNW of Nam She village. There is a remarkable overhanging cliff situated on the coast 2½ cables ESE of Kau Lau Wan Tsui.

Tap Mun Hau (South Channel), which leads into Long Harbour (14.19), lies between Kau Lau Wan Tsui and the S end of **Tap Mun Chau (Grass Island),** ¼ mile N. Tap Mun Hau, in the fairway of which there is a depth of 5·9 m, is barely ½ cable wide between the shoals extending from both sides.

Submarine cables and a water pipeline are laid across Tap Mun Hau.

Mau Ping Shan (Wintz Hill), 123 m high, the summit of Tap Mun Chau, lies 12 cables N of Kau Lau Wan Tsui.

Kung Chau, a group of islets and rocks, the highest of which is 33 m high and is steep and black, lies 3 cables E of the NE end of Tap Mun Chau on the NE end of a reef which extends ½ mile NE from the E side of that island; some of the rocks on this reef dry, and there is no navigable passage over it.

Sha Pai (Waterwitch Rock), with a depth of 3·2 m over it, lies ¼ mile SE of Kung Chau. Tuen Tsui bearing 160°, and open NE of Wong Mau Chau, clears Sha Pai to the NE. Wong Chuk Kok Tsui (14.22), in line with the S extremity of Chek Chau, bearing 304½°, clears Sha Pai to the NE by 2 cables and just clears Cham Pai to the NE.

Cham Pai (Channel Rock) (22° 29′·5 N, 114° 21′·8 E), which is awash at high water, lies 3 cables NNE of the NE extremity of Tap Mun Chau.

A **light** is exhibited from a white column, 6 m in height, standing on Cham Pai.

Chek Chau (Port Island) 123 m high, has a narrow ledge with rocky pinnacles on it, extending 1¼ cables from its NE extremity.

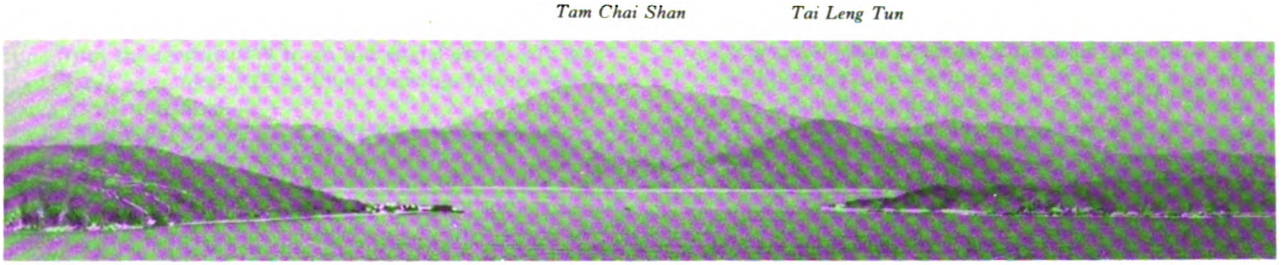
Tai Chek Mun and Chek Chau Hau, the channels NW and S of Chek Chau, are described in 14.22.

Tai Tan Hoi Hap and approaches

14.19

Tai Tan Hoi Hap (Long Harbour) is entered between the W extremity of Tap Mun Chau (14.18) and **Kwun Tsoi Kok (Ocean Point)** (22° 28′·8 N, 114° 20′·3 E), the N extremity of **Wan Tsai,** a peninsula 6½ cables W. **Tai Leng Tun (Goliath Hill)** 8 cables S of Kwan Tsoi Kok is the summit of the peninsula.

Hau Tsz Kok Poi (Le Mottée Shoal), with a depth of 3·7 m over its W edge, which is steep-to, lies on the E



(14.18) Tap Mun Hau from E
(Original dated 1981)

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side of Tai Tan Hoi Hap 2 cables S of the W extremity of Tap Mun Chau.

Ma Yan Pai (Junk Rock), with a depth of 1·2 m over it, lies near the SW end of a spit which extends 1½ cables offshore, 6½ cables SSE of the W extremity of Tap Mun Chau.

Buoys mark the channel between Ma Yan Pai and the shore.

The township of **Tap Mun** stands on the E side of an indentation situated 2 cables ENE of Ma Yan Pai; a jetty is situated 2¼ cables SE of Ma Yan Pai.

Tit Shue Pai (Warburg Rock), with a depth of 8·8 m over it, lies in the fairway 9 cables S of the W extremity of Tap Mun Chau. The W extremities of Chek Chau and Tap Mun Chau in line bearing 005°, clears Tit Shue Pai to the W by less than 1 cable and just clears Hau Tsz Kok Pai to the W.

14.20

Wan Tsai Pai (Phillimore Rock), with a depth of 8·2 m over it, lies on the W side of Tai Tan Hoi Hap, ½ mile SE of Kwun Tsoi Kok (22° 28′·8 N, 114° 20′·3 E) and 1 cable offshore.

Nam Fung Wan (White Cove) lies in the NW portion of Tai Tan Hoi Hap and is entered S of Wan Tsui (14.19) 1 mile S of Kwun Tsoi Kok. A detached shoal, with a depth of 4·6 m over it, lies 1 cable off the W entrance point to this cove.

At its S end Tai Tan Hoi Hap is divided into two narrow arms, **Chek Keng Hau (East Arm)** and **Kau Tong Hau (West Arm),** by **Tung Sam Kei Tsui (Stokes Point).** A **light** is exhibited from a white tubular pillar, 3 m in height, at the head of a pier on the SE side of the head of Chek Keng Hau, 1 mile SSE of Tung Sam Kei Tsui.

A submarine cable is laid across the entrance to Kau Tong Hau to Tung Sam Kei Tsui, thence up the E side of Tai Tan Hoi Hap to Ko Lau Wan Tsui.

Anchorage may be obtained in Tai Tan Hoi Hap, with good holding ground in depths of 9 to 15 m, but a considerable swell is experienced during N winds.

Pak Sha O

14.21

Pak Sha O (Jones Cove) is the E of two bays entered between Kwun Tsoi Kok and Heung Lo Kok (14.24), 1 mile W. The two bays are divided by a projection from which a shallow spit, on which are several islets and rocks, extends 6 cables N.

Hin Pai (22° 29′·1 N, 114° 19′·8 E), 1 m high, is the outermost of these rocks and lies 5½ cables NW of Kwun Tsoi Kok; it is marked by a **light-beacon** (white pile). **Mo Chau,** 18 m high, the E of the islets on the spit, lies 2 cables SSE of Hin Pai, and **Ngan Chau (Flat Island),** 29 m high, the largest, lies close W of Mo Chau.

Sam Po Shek (Datum Rock) (22° 28′·5 N, 114° 20′·1 E), which dries 2·1 m, lies on the E side of the entrance to Pak Sha O, 3¼ cables SSW of Kwun Tsoi Kok and close offshore.

On the W side of Pak Sha O **Chuen Lo Kok Tsui** lies 4 cables SW of Sam Po Shek.

Hoi Ha village stands at the head of Pak Sha O.

Pak Sha O is liable to a considerable swell during N winds.

Chek Mun Hoi Hap and approaches

14.22

Chek Mun Hoi Hap (Tolo Channel) leads from the W side of Tai Pang Wan to Tai Po Hoi (14.26). It is entered from NE by **Chek Chau Hau (Middle Channel)** between Tap Mun Chau (14.18) and Chek Chau (14.18), or by **Tai Chek Mun (North Channel)** between Chek Chau and **Wong Chuk Kok Tsui** (22° 30′·6 N, 114° 20′·0 E). The N summit of Pak Sha Tau Chau in line with a boulder on Heung Lo Kok bearing 251½° leads through Chek Chau Hau.

Chart 939

Specified anchorage. An anchorage bounded by latitudes 22° 31′·3 N, and 22° 32′·3 N and longitudes 114° 22′·0 E and 114° 23′·0 E is a specified anchorage for vessels waiting to enter harbour: see 13.4a.

Chart 1915

Pilotage. The boarding place for pilots is 1 mile SSW of Wong Chuk Kok Tsui: see 13.4a.

14.23

The NW side of Chek Mun Hoi Hap is hilly rising to a peak, 293 m high, 2½ miles WSW of Wong Chuk Kok Tsui.

A **light** is exhibited from a concrete tower on the SW entrance point of **Fung Wong Wat,** a small bay 2 miles SW of Wong Chuk Kok Tsui.

A **light** is exhibited from a concrete tower on **To Tau Tsui,** the SW entrance point of **Lo Fu Wat,** a bay on the NW side of the channel 2 miles WSW of Fung Wong Wat.

Pak Sha Tau Chau (Harbour Island) (22° 27′·5 N, 114° 15′·0 E) at the SW end of the NW side of Chek Mun Hoi Hap has several peaks. It is connected to the mainland NE and NW by dams which seal off the NE part of **Shuen Wan Hoi (Plover Cove)** to form **Plover Cove Reservoir.**

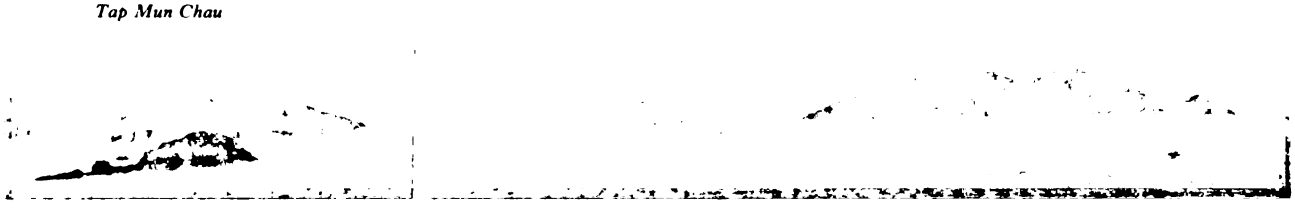
TH 1 Light-buoy (starboard hand) marks the edge of shoal water extending 1½ cables SE from the SW extremity of Pak Sha Tau Chau.

14.24

Heung Lo Kok (22° 28′·9 N, 114° 19′·1 E) is the S entrance point of Chek Mun Hoi Hap.

A bay in which there is a ferry pier is entered between **Ngo Keng Tsui,** 1½ miles SW of Heung Lo Kok, and **Pai Kok Chai,** 6 cables WSW.

Tung King Pai, consisting of two reefs and some



(14.22) Chek Chau Hau from NE
(Original dated 1981)

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rocks extending NE from the NE reef, lies 2 cables off the SE side of Chek Mun Hoi Hap. **Che Lei Pai (Knob Reef),** the NE reef, on which there is an islet 4·6 m high, lies 3 cables N of Pai Kok Chai. **Bun Sha Pai (Flat Reef),** on which there is an islet 0·9 m high, lies 3 cables SW of Che Lei Pai.

TH 2 Light-buoy (port hand) is moored 1½ cables NNE of Che Lei Pai.

14.25

Kei Ling Ha Hoi (Three Fathoms Cove) (22° 26′ N, 114° 16′ E) on the SE side of Chek Mun Hoi Hap is entered between a point 1 mile SW of Bun Sha Pai and a point 8 cables farther SW. There is a ferry pier on the S side of **Sham Chung Wan,** a bay close within the E entrance point of Kei Ling Ha Hoi. **Sam Pui Chau,** 9 m high, and **Wu Chau,** 37 m high, are islands close off the W side of Kei Ling Ha Hoi, 2½ cables SE and 6 cables SSE of the W entrance point. There is a ferry pier on the mainland abreast Sam Pui Chau.

Tang Chau (Bush Reef) lies 9 cables NW of the W entrance point of Kei Ling Ha Hoi. A **light** is exhibited from a white concrete column on the N point of the reef.

The main channel to Tai Po Hoi lies N of Tang Chau.

Wu Kwai Sha Tsui (White Head), the S entrance point of Tai Po Hoi, lies 1 mile WSW of Tang Chau.

Wu Kwai Sha Tsui from NE
(Original dated 1981)

Tai Po Hoi

14.26

Tai Po Hoi (Tolo Harbour) is entered between the SW extremity of Pak Sha Tau Chau (14.23) and Wu Kwai Sha Tsui, ¾ mile SSW.

A Chau (Centre Island) (22° 26′·5 N, 114° 13′·2 E), 24 m high, lies in the middle of and 1 mile W of the entrance to Tai Po Hoi.

Dangerous Goods Anchorage. There is an anchorage for vessels with dangerous goods in the middle of the entrance to Tai Po Hoi. It extends 1¼ miles W from Tang Chau.

A water pipeline, whose charted position is approximate, crosses the Dangerous Goods Anchorage from Pak Sha Tau Chau to the mainland S.

An **oil terminal** consisting of seven dolphins is situated in the Dangerous Good Anchorage, 2½ cables W of the SW extremity of Pak Sha Tau Chau. A pipeline runs from the terminal W to an industrial estate at Tai Po (14.27). A tanker 213 m long drawing 11·0 m can berth at the terminal.

Sha Tin Hoi (Tide Cove) is situated on the S side of the harbour and is entered between the W extremity of Wu Kwai Sha Tsui and a point 1½ miles SW.

A rock which dries 1·2 m is situated near the W side of Sha Tin Hoi, 1¾ miles SW of Wu Kwai Sha Tsui: A, B and C beacons (red and white bands, red and white chequers and black and white chequers respectively) stand on the rock.

An area of the head of Sha Tin Hoi has been reclaimed and is occupied by **Sha Tin** new town in which there are many high buildings.

In 1984 reclamation was in progress on the E side of the bay.

A gas pipeline runs from Sha Tin NW to Tai Po (14.28).

14.27

Shuen Wan Hoi, the N part of Tai Po Hoi W of the reservoir dam, is a spoil ground and has been declared a danger area due to the greatly reduced depths.

Sam Mun Tsai typhoon shelter is situated on the SW side of **Yim Tin Tsai** (22° 27′ N, 114° 13′ E), an island 94 m high on the SW side of Shuen Wan Hoi. The shelter is protected on its SW side by a breakwater and light-beacons stand on each side of the entrance SE of the breakwater head.

14.28

Tai Po town, in which there are many tower blocks, stands at the W end of the harbour. There is an industrial estate E of the town on the N side of the harbour.

Storm signals. When local storm signals are displayed at Hong Kong, supplementary signals are displayed at a flagstaff on **Yuen Chau Tsai** a small promontory, 27 m high, formerly an island, at the SE end of the town.

Chart 3544

Yan Chau Tong and approaches

14.29

Wong Chuk Kok Hoi is entered between Wong Chuk Kok Tsui (22° 30′·7 N, 114° 20′·0 E) (14.22) and **Mit Kok Tsui,** the E extremity of **Wong Wan Chau (Double Island),** ¾ mile WNW.

Anchorage may be obtained with good holding ground in Wong Chuk Kok Hoi in depths of 11 to 15 m mud.

At its head Wong Chuk Kok Hoi leads into Yan Chau Tong through **Hung Shek Mun.** A beacon (pole on concrete base; red and white stripes), 5 m in height, stands on a rock on the S side of the passage 1½ cables SE of the narrowest part of the passage. The purpose of this beacon is to assist the passage of small boats and yachts through the narrow channel.

14.30

Chik Mun Tau, which leads into Yan Chau Tong, is entered from SE between Mit Kok Tsui (14.29) and the S extremity of **Ngo Mei Chau (Crescent Island),** 145 m high, 4 cables N. There is a least depth of 5·8 m in the fairway of the channel, which is very narrow just E of **Ki Lun Shek,** a peaked rock 7 m high, situated on the SW side of the channel, 6¼ cables NW of Mit Kok Tsui (22° 31′·1 N, 114° 19′·1 E).

14.31

Wang Mun Hoi (Deep Pass), which leads into Yan Chau Tong from NE, is approached between the N extremity of Ngo Mei Chau and **Kai Kung Tau (Peaked Head)** (22° 33′·1 N, 114° 18′·9 E), the NE extremity of **Kat O Chau (Crooked Island),** ¾ mile N. Wang Mun Hoi is a little over 1 cable wide between the banks on either side; it is deep and clear of danger.

Pak Sha Chau (Round Island) (22° 32′·5 N, 114° 19′·7 E), 61 m high, lies in the E approach to Wang Mun Hoi, ½ mile NE of the N extremity of Ngo Mei Chau. **Kai Kung Pai (Cock's Head Rock),** with a depth of 6·7 m over it, lies 5½ cables NW of Pak Sha Chau.

On the S side of the approach to Wang Mun Hoi, **Ngo Mei Wan (Crescent Bay)** is situated on the N side of Ngo Mei Chau.

On the NW side of the approach to Wang Mun Hoi, **O Pui Tong,** an indentation in the SE side of Kat O Chau,

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is entered between Kai Kung Tau and the NW entrance point of Wang Mun Hoi, 1 mile SW. **Tui Min Chau,** 108 m high, lies close off the last mentioned point. A reef, which dries 1·8 m and at the extremity of which is **Wong Nai Chau,** 20 m high, extends 1½ cables NE from Tui Mun Chau. A spit, with a depth of 3·7 m (12 ft) at its outer end, extends 1 cable SSE from Wong Nai Chau.

14.32

Young Hebe Shoal, with a least depth of 5·5 m over it, lies in the approaches to Sha Tau Kok Hoi and Kat O Hoi, 9 cables N of Chek Kok Tau.

Kat O Hoi (Crooked Harbour), which leads into Yan Chau Tong through Tsing Chau Lek (14.33) and affords good anchorage, is entered between **Chek Kok Tau (North Point)** (22° 33′·4 N, 114° 17′·3 E), 1½ miles WNW of Kai Kung Tau, and **San Kau Po Kok,** a small promontory 34 m high, on the mainland 1¾ miles WSW. The E shore of Kat O Hoi is free from danger and is indented by **Kat O Wan,** and another bay S, which are separated from one another by **O Shi Kok,** ½ mile SSW of Chek Kok Tau. The villages of **Tung O** and **Sai O** are situated at the head of Kat O Wan.

Pak Sha Tau Tsui (14.33), the SW extremity of Kat O Chau, is situated 8½ cables S of O Shi Kok.

On the W side of the entrance to Kat O Hoi, a bank, with depths of less than 5 m over it, lies from 1 cable N to 7 cables NE of San Kau Po Kok. **Sai Ap Chau,** 13 m high, lies on the W side of this bank, and **Ap Chau (Robinson Island),** 23 m high, near the SE end of the bank, with **Ap Lo Chun,** 5 m high, midway between. A reef, which dries 1·8 m, extends ½ cable SW from the S extremity of Ap Chau; a **beacon** (white concrete post) marks its SW end. A rock, which dries 1·5 m, lies 1½ cables WNW of the S extremity of Ap Chau on the S end of a detached shoal; it is marked by a **beacon** (white concrete post).

Sheung Pai, a shoal, with a rock 0·6 m high on its W end and a rock 0·3 m high on its E end, lies ¾ cable E of San Kau Po Pok. **Cheung Shek Tsui,** an islet 48 m high, lies ¾ cable SSE of San Kau Po Kok.

The SW side of Kat O Hoi is indented, and several islets, each surrounded by a reef, lie off the projecting points. **Tai Nim Chau** (22° 32′·5 N, 114° 15′·8 E), 25 m high, lies ¼ mile SE of Cheung Shek Tsui, and 1¾ cables offshore. **Siu Nim Chau** lies 2 cables SSE of Tai Nim Chau and ¾ cable N of Pak Kok, a point on the mainland. **Ap Tau Pai, Fun Chau,** 42 m high, and **Tsing Chau (Table Island),** 15 m high, lie 3, 4½ and 7½ cables, respectively, SE of Siu Nim Chau. Tsing Chau is 2 cables N of **Liu Ko Ngam,** a point situated 1¾ miles SE of San Kau Po Kok. **Lo Chi Pai,** 18 m high, lies 1½ cables W of Fun Chau and **Lan Shuen Pai,** a rock which dries 2·4 m, lies 1 cable S of Lo Chi Pai, and ¾ cable offshore.

Anchorage, with good holding ground, may be obtained in Kat O Hoi in depths of 11 to 13 m, mud, clear of the charted submarine cables.

14.33

Tsing Chau Lek is the channel which connects the SE end of Kat O Hoi with Yan Chau Tong. It is entered between Liu Ko Ngam and Pak Sha Tau Tsui 4 cables NE. On the SW side of this channel, **Ngau Shi Wu Wan** is entered between Liu Ko Ngam and **Sai Lau Kong** 3 cables SE; **Wu Pai,** an islet 2·7 m high, lies close NW of Sai Lau Kong. **Yan Chau,** 10 m high and fringed by a reef, lies 1 cable NE of Sai Lau Kong.

On the NE side of Tsing Chau Lek, **Pak Sha Tau Tsui (Sandy Point)** (22° 32′·1 N, 114° 17′·0 E) is foul to a distance of 1 cable.

A submarine pipeline is *laid* across Tsing Chau Lek between Pak Sha Tau Tsui and Sai Lau Kong.

14.34

Yan Chau Tong (Double Haven), the bottom of which consists of mud, is one of the best anchorages in Tai Pang Wan, and is completely landlocked.

Village Rock, which dries 1·8 m and is marked by a **beacon,** lies in the N part of Yan Chau Tong, 3½ cables ESE of Pak Sha Tau Tsui, and at the S end of a reef which extends 2¼ cables SSW from the S side of Kat O Chau; another **beacon** stands on this reef 1 cable NE of Village Rock.

Fu Wong Chau, 38 m high and fringed by a reef, lies on the W side of Yan Chau Tong 3 cables S of Yan Chau. **Wu Yeung Chau Pai,** on which there is a rock which dries 1·2 m, lies on a bank extending 2 cables SE from Wu Yeung Chau. A white **beacon** stands on Wu Yeung Chau Pai.

Shau Kei Pai (Middle Ground), with a rock with a depth of 1·8 m over it near its W end, lies 2 cables NE of Fu Wong Chau.

On the SE side of Yan Chau Tong, **Ta Ho Pai (Horley Rock),** with a depth of 0·8 m over it, lies 9 cables E of Fu Wong Chau and 1¼ cables offshore. **Snake Islet,** 12 m high, lies 7 cables ESE of Fu Wong Chau. A bank, with depths of less than 10 m over it, extends 1½ cables NNW from Snake Islet, with **Kok Tai Pai (Woodman Reef),** over which there is a least depth of 0·6 m (2 ft), near its extremity.

Chap Mo Chau (22° 30′·9 N, 114° 17′·5 E), a rock 6 m high, situated 3 cables W of Snake Islet, lies on a reef which extends 1 cable N from the NW extremity of Wong Wan Chau. Hung Shek Mun (14.29) is approached from NW between Chap Mo Chau and **Hung Pai,** 4 m high, 3 cables SW.

Anchorage, with a very good holding ground, may be obtained in Yan Chau Tong in a depth of 13 m, mud, clear of the submarine pipeline in the SW part of the bay.

There are several typhoon mooring buoys for use by police launches in Yan Chau Tong.

Charts 3544, 939

Sha Tou Kok Hoi and approaches

14.35

Sha Tau Kok Hoi (Starling Inlet), which is situated in the NW corner of Tai Pang Wan, is approached between Chek Kok Tau (22° 33′·4 N, 114° 17′·3 E) (14.32) and a prominent point, which is steep-to, 1¾ miles NNE. The town of **Sha Tau,** where there is a custom house, is situated 1½ miles W of this prominent point.

Yantian Harbour (22° 35′·5 N, 14° 16′ E) is situated near Sha Tou. A major port is under development and it is planned to have general cargo and tanker berths in operation by 1990.

Chart 3544

Sha Tau Kok Hoi is entered between **Cheung Pai Tau (Ledge Point),** situated 2 miles W of Chek Kok Tau, and a point 1¼ miles NW.

A **light** is exhibited from a white column standing on the extremity of a reef 1¼ cables NNE of Cheung Pai Tau.

Ah Kung Tsui is situated 6 cables W of Cheung Pai Tau and between these two points there are three small bays. An island, 16 m high, lies close N of Ah Kung Tsui.

On the NW side of Sha Tau Kok Hoi the town of **Sha Tau Kok** stands nearly 1 mile W of Ah Kung Tsui. A

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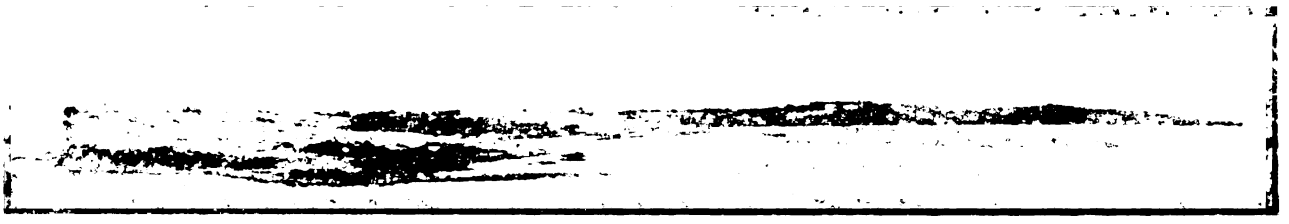

(14.37) Ping Chau from SE
(Original dated 1981)

signal station, at which storm signals are displayed, stands in the town. A stone pier extends nearly 2 cables into the inlet from the town.

The border between Hong Kong and China lies close NE of Sha Tau Kok.

A prominent police station with a flagstaff stands on the N side of the head of Sha Tau Kok Hoi 1 mile SW of Sha Tau Kok and a short distance inland; the village of **Wu Shek Kok** is situated on the coast S of the police station.

Chart 939

East and north coasts of Tai Pang Wan

14.36

Dapeng Jiao (Chun Pei Ngaam) or **Mirs Point** (22° 27′ N, 114° 30′ E), the NE entrance point of Tai Pang Wan, is a reef-fringed steep-sided point which rises to an elevation of 391 m close inland. **Hsi-ling Chiao (Griffin Rock),** 15 m (50 ft) high, lies close off the point.

There is a **boundary beacon** ¼ mile NW of Dapeng Jiao. The boundary of the Leased Territory follows the high water line of the E and N shores of Tai Pang Wan, the NW end of this coastal boundary being near Sha Tau Kok (14.35).

Between a point ½ mile NW of Dapeng Jiao and **Hakngam Kok,** 1 mile farther NW there is a bay where small vessels may obtain **anchorage,** sheltered from winds from N to E. Near the head of the bay there is a temple with a prominent white boulder close E of it. When approaching this anchorage, the boundary beacon NW of Dapeng Jiao becomes hidden by high land.

Between Hakngam Kok and the S entrance point of a small bay 3¾ miles N, the coast is slightly indented. At the head of this small bay there is a custom house, and **Nan-ao** village is situated at the S end, of the bay. A rock, 15 m (50 ft) high, stands near the outer edge of the coastal bank ½ mile WNW of Nan-ao village.

Between a point 7 cables NW of Nan-ao and a point which rises steeply to **East Cone,** 7½ cables farther NW, there is a bay, on the N side of which is **Shui-t'ou-sha** village. The head of the bay is separated from Ta-P'eng Ao (14.49) by a low isthmus. East Cone is a remarkable peak 238 m (781 ft) high.

Between the point at the end of its S slope and **Nam Au Tsui** (22° 34′·4 N, 114° 26′·1 E) 2 miles NW, there is a bay. A peaked rock, 12 m (40 ft) high, stands on the edge of the coastal bank 6 cables WNW of East Cone. **Ha Sha** village stands at the head of this bay.

14.37

Ping Chau (22° 33′·0 N, 114° 25′·5 E), an isolated island in the NE part of Tai Pang Wan 1 mile SSW of Nam Au Tsui, is part of Hong Kong Colony. The island is 42 m high, and its NW and S sides are cliffy and fringed by a reef extending 1 cable offshore. A rock, awash, lies 1 cable N of the E extremity of the island. A pier is situated on the E side of the island. The geological formation of the island differs from that of the adjacent island, being alluvial, and its beaches are of shale stones.

Good anchorage, during the NE Monsoon, may be obtained in **Ping Chau Hoi,** the channel between Ping Chau and the mainland NE, in a depth of 14 m (40 ft), but it is much obstructed by fishing stakes.

14.38

Between Nam Au Tsui and a point 5¾ miles WNW, there is a large bay, on the E side of which there is a flagstaff standing close to a large building, ¾ mile N of Nam Au Tsui. **Sha-yu-yung** village is situated at the head of the bay 3 miles NW of Nam Au Tsui on the NW side of the mouth of a small stream.

Between the point 5¾ miles WNW of Nam Au Tsui and a prominent point (22° 35′·1 N, 114° 18′·0 E) which is steep-to, 2 miles WSW, there are two bays separated from one another by a projection; **Peak Rock,** 19 m high and surrounded by below-water rocks some of which dry, stands 3 cables SW of this projection.

Sha Tau Kok Hoi (14.35) is approached between the above-mentioned prominent point and Chek Kok Tau, 1¾ miles SSE.

14.39

Communications in Tai Pang Wan. Tai Po (22° 26′·5 N, 114° 10′·7 E) (14.27) is connected to the Kowloon-Guangzhou railway system. There is regular communication by sea between the more important towns and villages in the bay.

Tidal streams. Along the W shore of the approach to Tai Pang Wan, while the tide is rising at Hong Kong, the stream sets S, but, at the same time there is a very strong E set through Lema Channel (13.36). There is a strong indraught into Tai Pang Wan while the tide is falling at Hong Kong, but within the bay the tidal streams are almost inappreciable.

Directions for Tai Pang Wan. No special directions are necessary for entering the various anchorages in the bay. Caution is, however, necessary to avoid the numerous fishing stakes, on some of which platforms are built, in depths of 11 to 17 m, especially at night. Although the HW mark in Tai Pang Wan is Crown Colony territory, mariners are advised to keep as far away as possible from the coasts on the N, E and NW sides of Tai Pang Wan.

APPROACHES TO DAYA WAN

Charts 3002, 3026

Dapeng Jiao to Xiechai Jiao

14.40

Dapeng Bandao, a mountainous peninsula, separates Tai Pang Wan from Daya Wan; the SE coast of the peninsula extends from Dapeng Jiao (22° 27′ N, 114° 30′ E) (14.38) to Xiechai Jiao, 8 miles NE. About 1 mile NE of Dapeng Jiao there is a perforated point on the coast, off which are some above-water rocks.

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Lai Shih Chou and other above-water rocks stand 2 miles ENE of Dapeng Jiao off the SW part of a bay, the NW shore of which is sandy. There is another sandy bay 3 miles ENE of Lai Shih Chou.

Pai Shih (White Rock), which is remarkable, is the outermost of a group of several above-water rocks standing close offshore ½ mile E of the NE entrance point of this bay.

Chart 3002

Tuoning Liedao

14.41

Tuoning Liedao, a group of islands, lies 2½ miles S of Xiechai Jiao (14.46) and is separated from Dapeng Bandao by a deep, clear, channel 1½ miles wide.

Sanmen Dao (To-ning) (22° 28′ N, 114° 38′ E), 297 m high, with a conical summit at its S end, surmounted by a tower, is the N island of the group. At the NW end of the island there is a flagstaff, and on a projection 3 cables S there is a fort and some customs buildings.

Islets and rocks, with foul ground around, extend 9 cables W from the NW extremity of Sanmen Dao; **Wang Chou (Net Islet),** the nearest, is shaped like a sugar loaf. **Lan Chou (Peak Rock),** 24 m (80 ft) high and appearing as two islets with a shingle beach between, lies ¼ mile SW of Wang Chou.

Kuei-wan (Cone Islet), 52 m (171 ft) high, with **Ta-heng Chou,** a smaller islet 42 m (138 ft) high, 1½ cables W of it, lie between Sanmen Dao and **Xiaosanmen Dao (San-men),** 64 m high, 1 mile SE. In the fairway between Kuei-wan and Xiaosanmen Dao there is a least depth of 11·9 m (39 ft).

Anchorages. The best anchorage is in **San Men Po-ti (San-men Road)** W of the S extremity of Kuei-wan in depths of 13 to 15 m (43 to 49 ft) and sheltered from all winds except from SW or S.

During SW winds there is anchorage off the N side of Sanmen Dao, in depths of 16 to 18 m (53 to 59 ft), and also NE of Kuei-wan in depths of 18 to 22 m (10 to 12 fm).

In the NE Monsoon, junks anchor in a depth of 16 m (53 ft), S of Wang Chou and Lan Chou, and abreast the fort on Sanmen Dao.

14.42

Qing Zhou (Single Islet), with a rounded summit 90 m high, is the S islet of Tuoning Liedao group and lies 1¾ miles SSE of Xiaosanmen Dao.

Akong, a remarkable pyramidal rock, 30 m (100 ft) high, lies 6 cables NE of Qing Zhou, with deep water between. **Qipai Jiao,** a rock, with a depth of 4·9 m (16 ft) over it, and which rises abruptly from a depth of 24 m (13 fm), lies 1 mile NE of Akong.

14.43

Denghuo Pai (Middle Rocks) (22° 31′ N, 114° 41′ E), which dry 1·8 m (6 ft), are situated on the W side of the fairway of the S approach to Daya Wan, 3¾ miles E of Xiechai Jiao. A rock, with a depth of less than 2 m (6 ft) over it, and on which the sea breaks, lies 3 cables SW of Denghuo Pai.

Chart 3026

14.44

Daxingshan Jiao (Fokai Point) (22° 33′ N, 114° 55′ E), on the E side of the approach to Daya Wan, is the S extremity of a promontory connected to the mainland by a low, sandy isthmus. The promontory is 204 m (670 ft) high and has the appearance of an island on E and W bearings. A fort stands on a hill, 120 m (393 ft) high, near the SW end of the promontory. A round tower, with a white mast close to it, stands 1½ miles NE of the fort; this tower is prominent when approaching from E, as it is then on the sky line, but it is obscured on bearings between N and W.

Daxinghan Light is exhibited from a metal framework tower standing 5 cables NNW of Daxingshan Jiao.

Guanyin Shan (Kuan-yin or **Harlem Peak),** 638 m (2120 ft) high, and prominent, lies 8 miles NNE of Daxingshan Jiao and 1¾ miles inland.

Xiaoxingshan (Hsiao Hsing Shan) (22° 31′ N, 114° 50′ E), situated 5 miles SW of Daxingshan Jiao, is 147 m (480 ft) high and has two peaks, rather like a saddle from some directions; **anchorage,** affording shelter from SW winds, may be obtained on the NE side of this island.

Shen-kao Tao (Tsinku), 53 m (167 ft) high, with a remarkable cleft near its centre, lies 6 cables N of Xiaoxingshan.

Lien-hau Shih (Middle Rock), 3 m (10 ft) high, lies 6 cables W of the point situated 1½ miles W of Daxingshan Jiao, and may be passed on either side by small vessels.

14.45

Pinghai Wan (Harlem Bay) is situated on the NE side of the approach to Daya Wan between the point 1½ miles W of Daxingshan Jiao and a promontory formed by the S extremity of a range of hills 4½ miles NW.

Anchorage may be obtained in Pinghai Wan during the NE Monsoon, N of **Lien-hau Chou (Hebe Islet)** (22° 34′ N, 114° 53′ E), 21 m (70 ft) high and flat-topped, in the SE part of Pinghai Wan. When approaching this anchorage from E, round Daxingshan Jiao at a distance of about ½ mile. Large vessels should pass W of Lien-hau Chou and give the 6·4 m (21 ft) rocky patch SW of it a suitable berth.

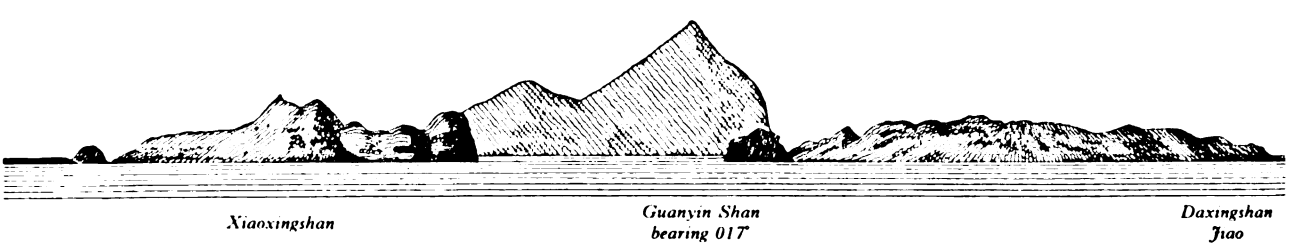
DAYA WAN

Chart 3002

West side of Daya Wan

14.46

Daya Wan (Ta-ya Wan or **Bias Bay)** is entered



(14.44) Approach to Daya Wan from S
(Original dated 1845)

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between **Xiechai Jiao (Hsi-chi Chiao)** (22° 31′ N, 114° 37′ E) and Daya Jiao (14.53), 8 miles NE.

Hsi-chi Chiao (Lu-chu K'an or Bold Bluff) (22° 33′ N, 114° 36′ E) situated 2¼ miles NNW of Xiechai Jiao is 48 m (157 ft) high.

14.47

A chain of islands and islets occupy the W side of Daya Wan. **Dalajia Dao (Lo Ko),** the main island of the S group, is situated 2¾ miles NE of Hsi-chi Chiao, and has three summits, the highest of which rises in the N part of the island to an elevation of 110 m (365 ft). A group of islets and rocks, the outermost of which is **Hsuan-yai Chou (Cliff Islet),** 27 m (90 ft) high, and the largest is **Chih Chou (Menglang Tao),** 43 m (142 ft) high, lies close SW of Dalajia Dao from which it is separated by a narrow but navigable channel with a least depth of 2·7 m (9 ft).

The S extremity of Dalajia Dao terminates in some pointed rocks, the S of which is **Erh-kuan-pi (Erh-ying Pi). Ping Chou (Flat Islet),** 44 m (145 ft) high, lies close off the SE part of Dalajia Dao; the channel between them is foul. **Hsiao-liu-chia,** an islet 52 m (172 ft) high, lies 3½ cables E of the N end of Dalajia Dao, separated from it by a channel with a least depth of 6·4 m (21 ft). A reef extends 3½ cables WNW from Hsiao-liu-chia and at its extremity stands **Heng Chou (Lokaup Rock),** 2½ m (8 ft) high.

Anchorage may be obtained on either side of Dalajia Dao, according to the direction of the wind. In October 1935 HM submarine *Rover* (1475 tons) anchored with Erh-kuan-pi bearing 125° distant 5¼ cables in a depth of 13 m (43 ft), mud.

Chu-tou-pa (The Pillars) (22° 36′·3 N, 114° 38′·7 E), an islet 28 m (93 ft) high and remarkable for two square pillars on its S side, lies 9 cables NNE of Dalajia Dao. **Hai-li Shih (Harry Rock)** lies 3¼ cables N of Chu-tou-pa.

14.48

Chung-hsin Lieh-tao (Middle Group) comprises seven islets, all surrounded by foul ground, and lies close N of Dalajia Dao (14.47). **Ching Chou (Hsiao-la-chia)** (22° 37′ N, 114° 38′ E), the S islet of Chung-hsin Lieh-tao, lies 1½ miles NNW of Dalajia Dao and has an elevation of 78 m (257 ft); **Kao-mai Shih (Hat Rock),** 16 m (52 ft) high, lies on the reef 1 cable SW of Ching Chou.

Yuan Chou (Square Islet), 32 m (106 ft) high, lies 5 cables NE of Ching Chou, whence **Kung Chou (Hole Islet),** 28 m (93 ft) high with an unnamed islet 29 m (95 ft) high, close N of it, **Hung Chou (Red Islet),** 75 m (247 ft) high, and **Shu Chou (Tree Islet),** 36 m (117 ft) high, lie in that order and extend 1¼ miles N. A rocky shoal, on which there is a 4·9 m (16 ft) patch lies 8½ cables W of Yuan Chou.

Yen (Yuan) Chou, 55 m (179 ft) high, lies 7 cables NW of Yuan Chou and between them there is a reef on which the sea breaks. A detached shoal, which dries 0·9 m (3 ft), lies 2½ cables N of Yen Chou.

Ta-p'eng Ao

14.49

Ta-p'eng Ao (Tai Pang Wan) (22° 35′ N, 114° 30′ E) lies at the head of the large bay in the SW part of Daya Wan. **Chi-lung (Tsatlong) Shan,** a conical hill 67 m (221 ft) high, lies close NNE of the N entrance point and **Ta-p'eng So,** a walled town, lies on the N side near the head of Ta-p'eng Ao.

Ta-p'eng Ao, although restricted by a coastal bank with depths of less than 5 m (16 ft) over it, affords good **anchorage** to moderate-sized vessels sheltered from all winds except from E.

Vessels entering Ta-p'eng Ao should keep to the S side of the bay, where the coast is bold and steep-to.

West side of Ta-ya Wan *(continued)*

14.50

Hai-pei Lieh-tao (Harbour Group), the N group of the chain of islets which occupy the W side of Daya Wan, consists of nine islets. **Luan Chou (The Twins)** (22° 39′·5 N, 114° 38′·5 E), two islets close together, the W of which is 29 m (96 ft) high and the E islet 12 m (40 ft) high, are situated 1 mile N of Shu Chou (14.48) and are the S islets of the group. **Shu-er Chou (Shoal Islet),** 68 m (224 ft) high, lies ¼ mile NE of Luan Chou. **Hsiao-pai Sha (Treeatop Islet),** 39 m (97 ft) high, lies ¼ mile WNW of Luan Chou, with **Pai-sha Chou,** 91 m (300 ft) high, ½ mile farther NW.

Lan-lo Shih (Fairway Rocks), 2½ cables in extent and the N of which dry 0·9 m (3 ft), lie 8½ cables WSW of Luan Chou.

Ta Chou (Narrow Islet), with an elevation of 79 m (260 ft) at its S end, lies 3 cables N of Shu-er Chou.

San Chou (Round Islet), 60 m (198 ft) high, lies 2½ cables NNW of Ta Chou. **P'ing Shih (Flat Rock),** nearly awash and steep-to, lies 1¼ cables N of San Chou. **Mon-t'ou Chou (Cone Islet),** 34 m (113 ft) high, lies 6 cables NW of San Chou; **Middle Reef** lies 5 cables SW of Mon-t'ou Chou.

Hsi Chou or **Big Islet** (22° 40′ N, 114° 36′ E), 104 m (342 ft) high, lies 6½ cables W of Pai-sha Chou. **Hu-t'ou Shih (Fisherman Rock),** which dries 1·5 m (5 ft), lies nearly in the middle of Hu-t'ou Men. **Pei-shu Chou (North Tree Islet),** 40 m (132 ft) high, lies close off the N end of Hsi Chou, and **Pei Shih (North Rock),** a flat rock with a reef, which is only visible at low water, lies 3 cables farther N. **Fang Shih (Square Rock),** 3 m (10 ft) high with another rock 1 cable E of it, lies 6½ cables NE of Pei Shih; a rock with a depth of less than 2 m (6 ft) lies 2½ cables SW of Fang Shih.

14.51

Ya Chou (Slope Islet) (22° 42′·0 N, 114° 36′·5 E), 53 m (173 ft) high, lies 1 mile N of Hsi Chou. **Ai (O) Chou (Low Islet),** 37 m (123 ft) high, with another unnamed islet 21 m (70 ft) high close NW, lies 1½ miles NNE of Ya Chou. **Kai-pien Yen (Kai Pan Rock),** with a depth of 2·7 m (9 ft) over it, lies 9 cables NNE of Ya Chou.

Sha-yu-lin (Dumbell Islet), 83 m (271 ft) high, lies 6½ cables W of Ya Chou. **Ch'uan-chu Chou (Sun Chau),** 76 m (250 ft) high, with a rock with a depth of less than 2 m (6 ft) close off its E extremity, lies 6 cables N of Sha-yu-lin, with **Chin-hsin Chou (Split Islet),** 45 m (149 ft) high, between them.

Ya-ling Wan

14.52

Ya-ling Wan, in which the depths are mostly less than 5 m (16 ft), lies W of Hai-pei Lieh-tao (14.50) on the W side of Daya Wan. The deepest entrance channel into the bay is **Hu-t'ou Men** which leads between Hsi Chou (22° 40′ N, 114° 36′ E) and the mainland 6 cables SW. Attention must be paid to **Hu-t'ou Shih (Fisherman Rocks)** which dries 1·5 m (5 ft) and lies nearly in the middle of Han-t'ou Hiu. **Tsao-sha Tui (Sand Cay),** a low rock surrounded by sand, lies 1¼ miles N of the S entrance point of Ya-ling Wan and ½ mile NW of Hsi Chou. The NW side of Ya-ling Wan is indented with several islets and rocks lying off the coast.

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The town of **Pa Kong (Pankang)** is situated at the head of the bay, 5½ miles W of the S entrance point.

Chih-ma Chou (Hogsback Islet), 100 m (328 ft) high with an islet 33 m (107 ft) high close E of it, lies close S of the N entrance point of the bay. A detached above-water rock lies 2 cables E of the 33 m (107 ft) islet. Two islets, 37 m (120 ft) and 24 m (80 ft) high, lie 2 and 5½ cables, respectively, NW of Chih-ma Chou, at the entrance to **Ao-t'ou Chiang,** an inlet in which there are a number of islets and rocks. **Nai-t'ou Shan (Nipple Hill)** rises to an elevation of 117 m (384 ft) on a peninsula on the N side of Ao-t'ou Chiang.

To-mei Chou (Dome Islet), 46 m (152 ft) high with some rocks, both above water and awash, a short distance from its E side, is the E islet of a group including **Nan Chou (South Islet)** and **Ta-shih Chou** lying near the head of Ya-ling Wan.

Communications. There is regular communication by sea between Hong Kong and Ya-ling Wan.

East side of Daya Wan

14.53

Daya Jiao (Pei-ya-shih Chiao or **Bias Point)** (22° 35′ N, 114° 45′ E), the E entrance point of Daya Wan, is the W extremity of a small peninsula with three peaks; the E and highest peak, **Po-sha Shan,** has an elevation of 116 m (380 ft). A rocky ridge extends 6 cables SSW from the point with two rocks, 12 m and 4 m (38 ft and 12 ft) high, near its outer end.

14.54

On the shore of a bay, ½ mile NE of Daya Jiao, there is a sand patch and also a factory with a chimney both of which are conspicuous.

Fa Shan (Bate Island), 89 m (293 ft) high and wooded, lies 1¼ miles W of Daya Jiao. **Hsiao-fi Shan (Little Bate Island),** a bare rock 17 m (55 ft) high, stands 3 cables SE of Fa Shan. Foul ground extends 1½ cables from the N end of Fa Shan, on the outer end of which is **Ma-an Pa (Maung Pai),** a rock awash.

Sung-t'ung Chiao (Thornton Rock), ½ m (1 ft) high, stands 6 cables NNE of Fa Shan.

The channel between Fa Shan and the foul ground off Daya Jiao is not recommended owing to the possible existence of undiscovered pinnacle rocks.

14.55

Pi-chia Chou (Triple Islets), 45 m (147 ft) high at its S end, lies on the outer edge of the coastal bank, 2¼ miles NNW of Daya Jiao and 6 cables offshore.

Good anchorage may be obtained W of Pi-chia Chou in the NE Monsoon in a depth of 11 m (36 ft) or anywhere on the E side of Daya Wan according to draught.

Sung-yuan Chiao (Whaler Point) (22° 39′·5 N, 114° 43′·6 E) lies 1½ miles N of Pi-chia Chou.

Tsun-chou Tao, flat topped, inconspicuous and 29 m (95 ft) high, is situated 4½ miles N of Sung-yuan Chiao and 6 cables offshore. A narrow bank of stones, which dries, extends 1½ cables from the NE end of the island. An islet, 20 m (64 ft) high, is situated 1½ cables SE of Tsun-chou Tao.

14.56

Landmarks. Four mountains, all of which are conspicuous lie inland from this part of the coast:

Hu-keng-ting (Station Peak), 237 m (779 ft) high, lies ¾ mile inland ENE of Pi-chia Chou.

Che-ku Chien (Mount Hewett), 569 m (1868 ft) high, lies 4½ miles NE of Sung-yuan Chiao.

Pai-keng Shan (Mount Bisbee), 607 m (1993 ft) high, lies 5½ miles NE of Sung-Yuan Chiao.

Fan Kuei Tung *(Kao-ao Shan),* 530 m (1739 ft) high, lies 1 mile NW *of Pai-keng Shan.*

There are numerous villages on these mountains and the valleys between are cultivated.

Fan-lo Kang

14.57

The entrance to **Fan-lo Kang (Fan Ho Chiang),** situated in the NE corner of Daya Wan, is between **Shui-niu Chiao (Buffalo Point)** and **Ta P'ai T'ou (Tai-pai Tao)** (22° 46′·7 N, 114° 44′·0 E) 2 miles NNW. Ta P'ai T'ou is high and rocky.

A bar, with a least depth of 5·1 m (17 ft) in the fairway over it, stretches between the two entrance points.

Fan-lo Kang is surrounded by hills; **Yu-shi Ting,** 422 m (1386 ft) high and conspicuous, lies on the N side 2 miles NE of Ta P'ai T'ou, and on the S side the hills attain an elevation of about 300 m. The town of **Fan-lo Kang (Fan-ho-kang)** and several villages are situated on a cultivated plain, backed by hills, at the head of the harbour.

Anchorage, reported to be the best in Daya Wan during a typhoon, may be obtained in Fan-lo Kang.

North side of Daya Wan

14.58

Between Ta P'ai T'ou (22° 46′·7 N, 114° 44′·0 E) and **Hai-chiao-ao (Wa-shan Tau),** a prominent headland with an elevation of 111 m (365 ft), 2¼ miles W, there is a bay in the N side of Daya Wan which gives access to two small creeks. Numerous drying and other rocks lie in this bay; **Sai Pai,** the S of these rocks with a depth of 1·5 m (5 ft) over it, lies 2 miles W of Ta P'ai T'ou and 9 cables offshore.

Fu Chou (Chau), 40 m (130 ft) high and connected to the mainland at low water, lies ½ mile WSW of Hai-chiao-ao. **Pao-t'a Chou (Po Tap Chau),** 26 m (85 ft) high with islets on its NE and SW sides and a pagoda on its summit, lies ¾ mile SW of Fu Chou and 3 cables offshore.

Fishing stakes. The whole of the N part of Daya Wan from Ta Chou (22° 40′ N, 114° 39′ E) (14.50) E, is often thickly studded with strong fishing stakes connected with stout ropes, which are a serious obstacle to navigation at night. A clear passage may be found on the E side of the bay, near Tsun-chou Tao.

14.59

Tidal streams in Daya Wan turn about ½ hour before high and low water at Hong Kong and attain a spring rate of ¾ knot.

Off Daya Wan the rate of the tidal stream is less than ½ knot, setting W from ½ hour before low water at Hong Kong to ½ hour before high water there, and E for the rest of the time.

During the NE Monsoon the W drift current of about ½ knot causes the set to be constantly W at a rate which does not exceed 1 knot.

APPROACHES TO HONGHAI WAN

Chart 1962

14.60

Currents. On the S coast of China, the current during the NE Monsoon runs almost constantly WSW nearly parallel to the coast at a rate of 18 to 48 miles a day, according to the strength of the wind, and sometimes, when a typhoon or storm occurs, its rate is greatly increased. In the height of the SW Monsoon, the current runs ENE at a rate of 15 to 22 miles a day. On occasions

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during both monsoons, inshore sets of considerable strength have been experienced along this coast.

Chart 1372

Outlying islets and dangers E and SE of Daxingshan Jiao

14.61

Zhenyantou (Pedro Blanco) (22° 19′ N, 115° 07′ E) lies 19 miles SE of Daxingshan Jiao (14.44) and consists of two rocks with a passage between them 2 m in width and 4·5 m in depth: the passage can be seen when the rocks are viewed from N and S. The E and larger rock is 41 m high, with a summit which appears conical on some bearings and is speckled with white deposits. The W rock has a shelf extending 50 m NW, with a rock drying 1·5 m at its seaward extremity: apart from this shelf, both rocks are steep-to.

Zhenyantou bearing 174°, 2½ miles
(Original dated 1935)

Jingyu Yan, a rock with a depth of 1 m over it, on which the sea sometimes breaks, lies 6½ miles ESE of Daxingshan Jiao: it is in two parts and steep-to.

A 10·6 m shoal lies 2 miles WSW of Jingyu Yan and **Yuanzi Jiao,** a 13·2 m shoal, lies 1¼ miles E of the same rock.

Baiya Pai, a flat rock 9 m high, is situated 2½ miles N of Jingyu Yan.

Honghai Wan

14.62

Sanzhou Ao (22° 41′ N, 114° 58′ E) is an extensive inlet entered 9 miles NNE of Daxingshan Jiao. Banks in the entrance and within the inlet are subject to change and no vessel should enter without local knowledge. Tidal streams in the entrance may attain a rate of 5 knots.

Luosi Tou, a headland, is situated 3½ miles NE of the entrance to Sanzhou Ao.

14.63

Dongding Yu (22° 38′ N, 115° 06′ E), 8 m high and rocky, lies 6 miles SE of Luosi Tou: it is fringed with above and below-water rocks which extend ½ mile S and E of the islet.

Xiding Yu, lying 1½ miles NW of Dongding Yu, is 15 m high and similar to that islet.

A rock with a depth of 1·4 m over it, upon which the sea often breaks, lies 3 miles NW of Dongding Yu.

Gu Yan, situated 3 miles ENE of Xiding Yu, has a depth of 1·1 m over it; the sea only breaks on it at low water or when there is a heavy sea. A rock, with a depth of 2·7 m over it, lies ½ mile NE of Gu Yan.

Paisha Shan, 129 m high, lies 5½ miles NE of Luosi Tou and ¾ mile offshore.

A peaked rock, 43 m high, with detached rocks round it stands 6 miles ENE of Luosi Tou.

Jiangmu Dao (Honghai Dao) (22° 44′ N, 115° 11′ E), an island 53 m high, is situated 8½ miles E of Luosi Tou: two rocks which dry lie 3 cables SSE of the SE extremity of the island.

Anchorage giving some shelter from S winds may be obtained on the N side of Jiangmu Dao in a depth of 7 m.

14.64

A bay enclosed by two peninsulas projecting from the middle of Honghai Wan, is entered between **Baian Jiao** (22° 47′ N, 115° 11′ E), 116 m high, situated 2 miles N of Jiangmu Dao, and **Niubi Tou,** 113 m high, 2½ miles E. The general depths in this bay are less than 4 m. The bay affords protection from N winds; vessels entering should pass close to Niubi Tou and anchor when a fishing village on the shore of the bay NE of the point comes into sight.

Shanwei Gang

14.65

Shanwei Gang is entered in the NE corner of a bay between Niubi Tou (14.64) and **Shanwei Tou,** 7 miles ESE. **Shashe Wei** (22° 26′·4 N, 115° 20′·5 E) is the N extremity of a sandy spit which forms the S entrance point.

Sandianjin, a group of drying rocks, lies ¾ mile WNW of the entrance: a **light** is exhibited from a white round concrete structure, 9 m in height, on the rocks.

Leading lights are exhibited from white round towers on the N side of the entrance: in line they bear 072½°.

No 1 Light-buoy (starboard hand) is moored ¾ mile SW of Sandianjin; thence the channel is marked by light-buoys (port and starboard hand). Shanwei Gang Entrance Spit Light-buoy (starboard hand) is moored 1½ cables N of Shashe Wei.

Pilotage is compulsory.

Anchorages. The anchorage for vessels awaiting a pilot is 7½ miles WSW of the entrance. The quarantine anchorage is SW of Sandianjin. Dangerous goods and other anchorages are within the harbour.

Shanwei Gang is an important fishing port. The village stands on the N shore about ¾ mile within the entrance and there are several small jetties fronting it. There are a number of mooring buoys S of the village. Facilities include slipways and repair yards for small craft.

The harbour is open to foreign shipping. Storm signals are displayed.

Honghai Wan (continued)

14.66

Anchorage can be obtained W of Shanwei Tou (22° 44′ N, 115° 20′ E) where there is shelter from the NE Monsoon but a long heavy swell rolls in.

Damao Shan situated 1 mile SE of Shanwei Tou is an artificial cone, 300 m high, standing on the highest part of the hills, 2 miles NW of **Saozhou Wei** (22° 41′ N, 115° 23′ E), the E entrance point of Honghai Wan.

Tidal streams. Strong tidal streams, setting N on the flood and S on the ebb, have been observed when passing Honghai Wan.

Saozhou Wei to Zhelang Jiao

14.67

Guiling Dao (22° 40′ N, 115° 26′ E), 51 m high, lies near the extremity of a rocky spit, extending 1½ miles S from the coast, 2 miles E of Saozhou Wei; foul and rocky ground extends 6 cables S from the island, and **Da Pai,** a rock with 3 m over it, lies 1½ miles SW of the W point of Guiling Dao.

Anchorage may be obtained between Saozhou Wei and Guiling Dao during the NE Monsoon.

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14.68

Many dangers lie off the coast between Guiling Dao and Zhelang Jiao 8 miles E. The outer ones are:

Cai Yu, an islet 18 m high, 3¼ miles SE of Guiling Dao, and **Ma Yu,** 10 m high, ½ mile N of Cai Yu: they are surrounded by reefs extending up to a distance of 2 cables from the islets.

Shuiya Shi, 6 m high, lies 1¾ miles W of Zhelang Jiao.

14.69

Zhelang Jiao (22° 39'·4 N, 115° 34'·1 E) consists of red sand and rugged rock; a conspicuous boulder, on which there is a white-washed mark, is situated at an elevation of 31 m, ¼ mile N of the point. The land for some distance on either side of Zhelang Jiao is a remarkable red colour with black mounds. **P'ao-t'ao Shan,** a small hill with a fort on it, lies ¾ mile NW of Zhelang Jiao.

Zhelang Yan, an islet 34 m high, is situated close S of Zhelang Jiao; the channel between is foul.

Zhelang Yan Light is exhibited from a metal framework tower standing on the summit of the island.

Anchorage with good holding ground and sheltered during the NE Monsoon may be obtained 2 cables W of Zhelang Jiao in depths of 11 to 13 m, sand and mud, but caution must be exercised as the tidal streams are strong and the depths decrease rapidly close inshore. The white-washed mark on the conspicuous boulder, in line with a smaller boulder SW of it, bearing 044°, leads to the anchorage; Zhelang Yan Light-structure in line with another white-washed boulder close below it, bearing 132°, is an anchoring mark.

14.70

The E side of Zhelang Jiao is described in *China Sea Pilot Vol 3.*

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APPENDIX I

MINED AREAS

The following areas were declared dangerous due to mines laid during the 1939–1945 war. Due to the lapse of time the risk from these mines to surface navigation is considered to be no greater than the ordinary hazards of navigation but a risk does still exist with regard to anchoring, fishing or any form of submarine activity close to the seabed.

THAILAND

Ao Ban Don (4.53) (chart 3963)
The area enclosed by the parallel of 9° 23′ N, the meridian of 99° 45′ E and the shore is open to surface navigation only. Area is still dangerous for anchoring and fishing.

Ao Chumphon (4.67) (chart 3964)
The waters within an area with centre Ko Mattaphon Light (10° 27′ N, 99° 15′ E) and radius 13 miles are open to surface navigation only. Area is still dangerous for anchoring and fishing.

Prachuap Khiri Khan (4.84) (charts 3964, 3965)
The area enclosed by the parallels of 11° 50′ N and 11° 41′ N and the meridians of 99° 52′ E and 99° 49′ E is open to surface navigation only. Area is still dangerous for anchoring and fishing.

Hua Hin (4.88) (chart 3965)
The area within a circle of radius 1 mile with centre in 12° 31′ 15″ N, 100° 00′ 00″ E is open to surface navigation only. Area is still dangerous for anchoring and fishing.

Laem Phak Bia (4.92) (chart 3965)
The area within a circle of radius 6 miles with centre in 13° 00′ 00″ N, 100° 19′ 00″ E is open to surface navigation only. Area is still dangerous for anchoring and fishing.

Mae Nam Mae Khlong (4.96) (chart 3965)
The area within a circle of radius 1 mile with centre in 13° 16′ 30″ N, 100° 00′ 45″ E is open to surface navigation only. Area is still dangerous for anchoring and fishing.

Mae Nam Tha Chin (4.100) (chart 3965)
The area within a circle of radius 1 mile with centre in 13° 26′ 00″ N, 100° 19′ 00″ E is open to surface navigation only. Area is still dangerous for anchoring and fishing.

Mae Nam Tha Chin (4.102) (chart 3965)
The area within a circle of radius 1·5 miles with centre in 13° 20′ 45″ N, 100° 25′ 00″ E is open to surface navigation only. Area is still dangerous for anchoring and fishing.

Ko Si Chang (4.136) (chart 986, 1046)
(i) The waters in depths of *less* than 5·5 m around Ko Si Chiang are open to surface navigation. Area is still dangerous for anchoring and fishing.
(ii) Ko Si Chiang Anchorage is used on a year round basis. It is normally approached from the N. Laem Samuk Anchorage (4.128) is available for small vessels in the event of adverse conditions at Ko Si Chiang.

Ko Rin (4.150) (chart 1046)
The area within a circle of radius 4 miles with centre in 12° 49′ 00″ N, 100° 43′ 00″ E is open to surface navigation only. Area is still dangerous for anchoring and fishing.

Ko Khram (4.160) (charts 3737, 1046)
The area within a circle of radius 5 miles with centre in 12° 34′ 00″ N, 100° 45′ 15″ E is open to surface navigation only. Area is still dangerous for anchoring and fishing.

Ko Chang (4.204) (chart 3966)
The area bounded by the parallels of 11° 51′ N and 11° 54′ N and by the meridians of 102° 24′ E and 102° 32′ E is open to surface navigation only. Area is still dangerous for anchoring and fishing.

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CHINA

Approaches to Yu-lin and San-ya (9.61, 9.65) (charts 3893, 3989, 3991)

(i) The area north of 18° 09′ N and between the meridians of 109° 29′ E and 109° 35′ E is dangerous due to ground mines.

(ii) A swept channel into Yu-lin Chiang Harbour has been cleared of ground mines as follows:
A rectangle with NE corner in position 194° 914 m from Lo-tao Chiao (18° 12′ 34″ N, 109° 33′ 06″ E) and E and N sides running 180° 5669 m and 270° 2743 m from this position. A 731 m wide channel on line of bearing 149·7° from the centre of harbour entrance connects with the rectangle.

(iii) Vessels entering San-ya Port are recommended to use the route passing through the following positions:

Bearings and distances from the summit of Hsi-mei Chou (18° 14′ N, 109° 22′ E).

(*a*) 225° 9 miles
(*b*) 284° 5·1 miles
(*c*) 352° 1·8 miles
(*d*) 044° 1·25 miles
(*e*) 083° 5·5 miles

Vessels should anchor in the vicinity of position (*e*).

W approach to Qiongzhou Haixia (9.15) (chart 3892)

The area bounded by the parallels of 20° 00′ N and 20° 10′ N between the meridians of 109° 14′ E and 109° 22′ E is dangerous due to mines.

E approach to Qiongzhou Haixia (9.44, 10.2) (chart 3892)

(i) The area bounded by the parallels of 20° 00′ N and 20° 30′ N between the meridians of 110° 30′ E and 111° 05′ E is dangerous due to mines.

(ii) A channel 10 cables wide has been swept with centre-line passing through the following positions:
(*a*) 20° 15′ 30″ N, 111° 05′ 00″ E.
(*b*) 20° 15′ 30″ N, 110° 55′ 18″ E.
(*c*) 20° 14′ 18″ N, 110° 49′ 12″ E.
(*d*) 20° 14′ 30″ N, 110° 44′ 24″ E.
(*e*) 20° 14′ 30″ N, 110° 30′ 00″ E.

The following areas are declared dangerous due to mines laid during hostilities in Vietnamese waters between about 1963 and 1973.

VIETNAM

Mui Ba Kiem (6.10) (chart 1261)

The area bounded by the parallels of 10° 10′ N and 10° 20′ N, between the meridians of 107° 45′ E and 107° 55′ E, is safe for surface navigation only. Anchoring, dredging, cable laying, trawling and submarines bottoming should be avoided.

Mui Ké Ga (6.13) (charts 1261, 3986, 3987)

The area bounded by the parallels of 10° 30′ N and 10° 40′ N, between the meridians of 107° 58′ E and 108° 05′ E, is safe for surface navigation only. Anchoring, dredging, cable laying, trawling and submarines bottoming should be avoided.

Dao Phu Qui (2.90) (charts 3986, 3987)

The area bounded by the parallels of 10° 23′ N and 10° 29′ N, between the meridians of 108° 55′ E and 109° 00′ E, is dangerous due to mines.

Cu Lao Xanh (6.117) (chart 3874)

The area bounded by the parallels of 13° 34′ N and 13° 39′ N, between the meridians of 109° 16′·5 E and 109° 21′·4 E, is dangerous due to mines.

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APPENDIX II

HONG KONG WATERS

Rules for vessels using traffic separation schemes

Since they have not been adopted by IMO the provisions of Rule 10 of the *International Regulations for Preventing Collisions at Sea (1972)*, do not apply to the traffic separation schemes in Hong Kong waters. All vessels using these schemes should comply with the following rules.

1 Every vessel proceeding along as opposed to crossing, any traffic lane of any traffic separation scheme authorised by the Director of Marine shall have right of way over any vessel proceeding across such a traffic lane.

2 Every vessel using the traffic separation scheme shall:
(*a*) proceed in the appropriate traffic lane in the general direction of traffic flow for that lane;
(*b*) so far as practicable keep clear of a traffic separation line or separation zone;
(*c*) normally join or leave a traffic lane at the termination of the lane, but when joining or leaving from the side shall do so at as small an angle to the general direction of traffic flow as practicable.

3 Every vessel shall so far as practicable avoid crossing traffic lanes, but if obliged to do so shall cross as nearly as practicable at right angles to the general direction of traffic flow.

4 Designated inshore traffic zones shall not normally be used by through traffic which can safely use the appropriate traffic lane within the adjacent traffic separation scheme. Pleasure craft should use the inshore traffic zones.

5 Every vessel, other than a crossing vessel, shall not normally enter a separation zone or cross a separation line except in cases of emergency to avoid immediate danger.

6 Every vessel navigating in areas near the termination of the traffic separation scheme shall do so with particular caution.

7 Every vessel shall so far as practicable avoid anchoring in the traffic separation scheme or in areas near its termination.

8 Every vessel not using the traffic separation scheme shall avoid it by as wide a margin as is practicable.

9 A vessel engaged in fishing shall not impede the passage of any vessel following a traffic lane.

10 A vessel of less than 20 metres in length or a sailing vessel shall not impede the safe passage of a power-driven vessel following a traffic lane.

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PANORAMIC VIEWS

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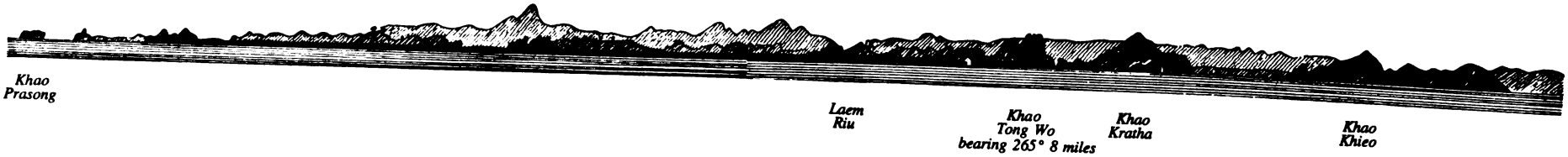
1

(3.23–3.30) Pulau Stindan to Pulau Layak

(Original dated prior to 1949)

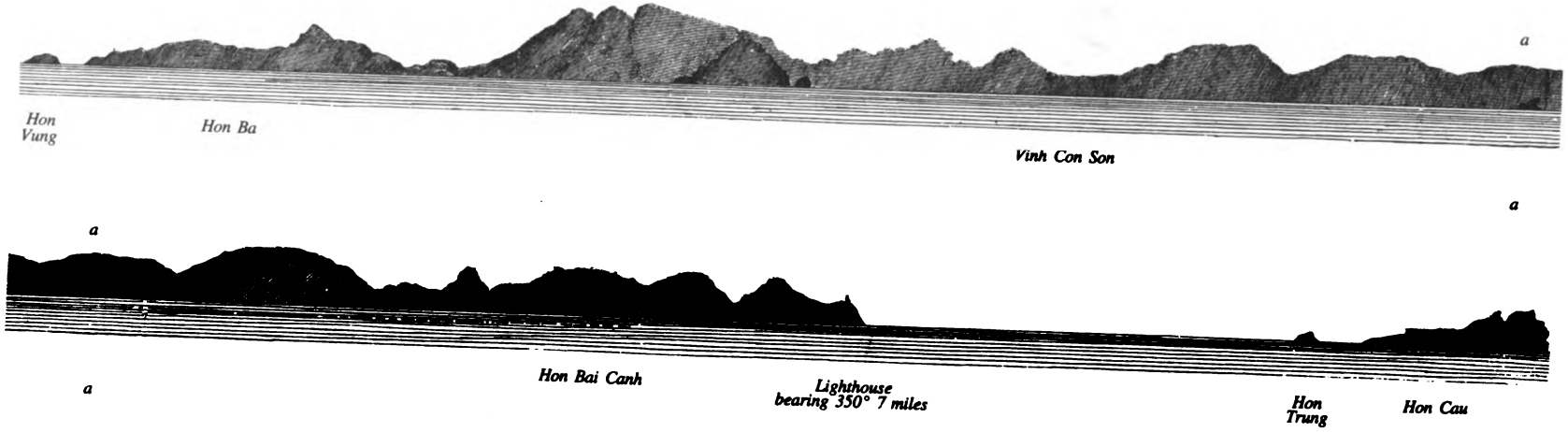
2



(4.54, 4.60) Lang Suan Roads from NE

(Original dated 1872)

3



(5.87–5.95) Con Son from SE—View in two parts

(Original dated prior to 1953)

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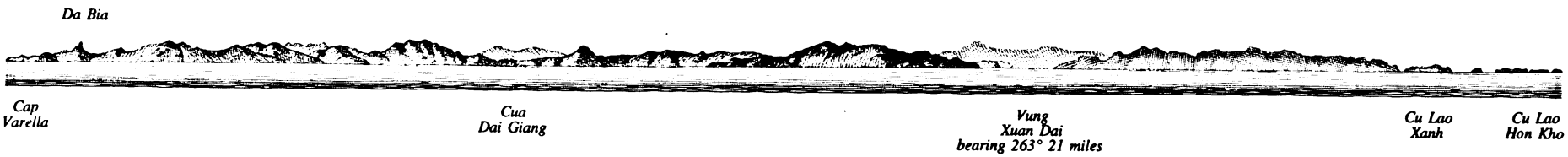
4

(6.7–6.13) Mui Ky Van to Mui Ké Ga

(Original dated prior to 1959)

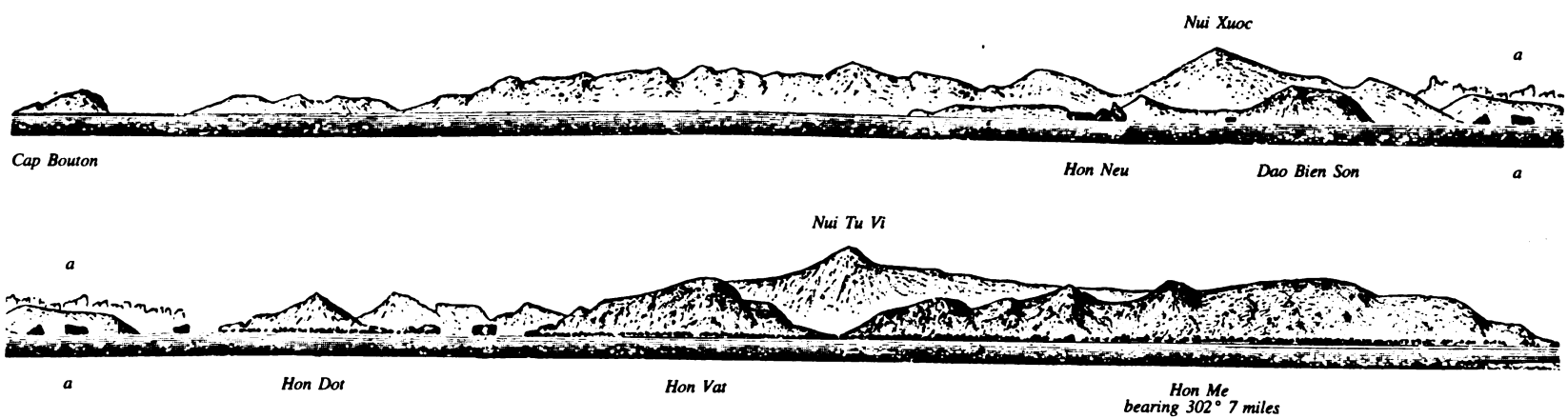
5



(6.97–6.103) Cap Varella to Vung Xuan Dai

(Original dated prior to 1960)

6



(7.41–7.44, 7.47) Coast between Cap Bouton and Hon Me—
view in two parts

(Original dated 1930)

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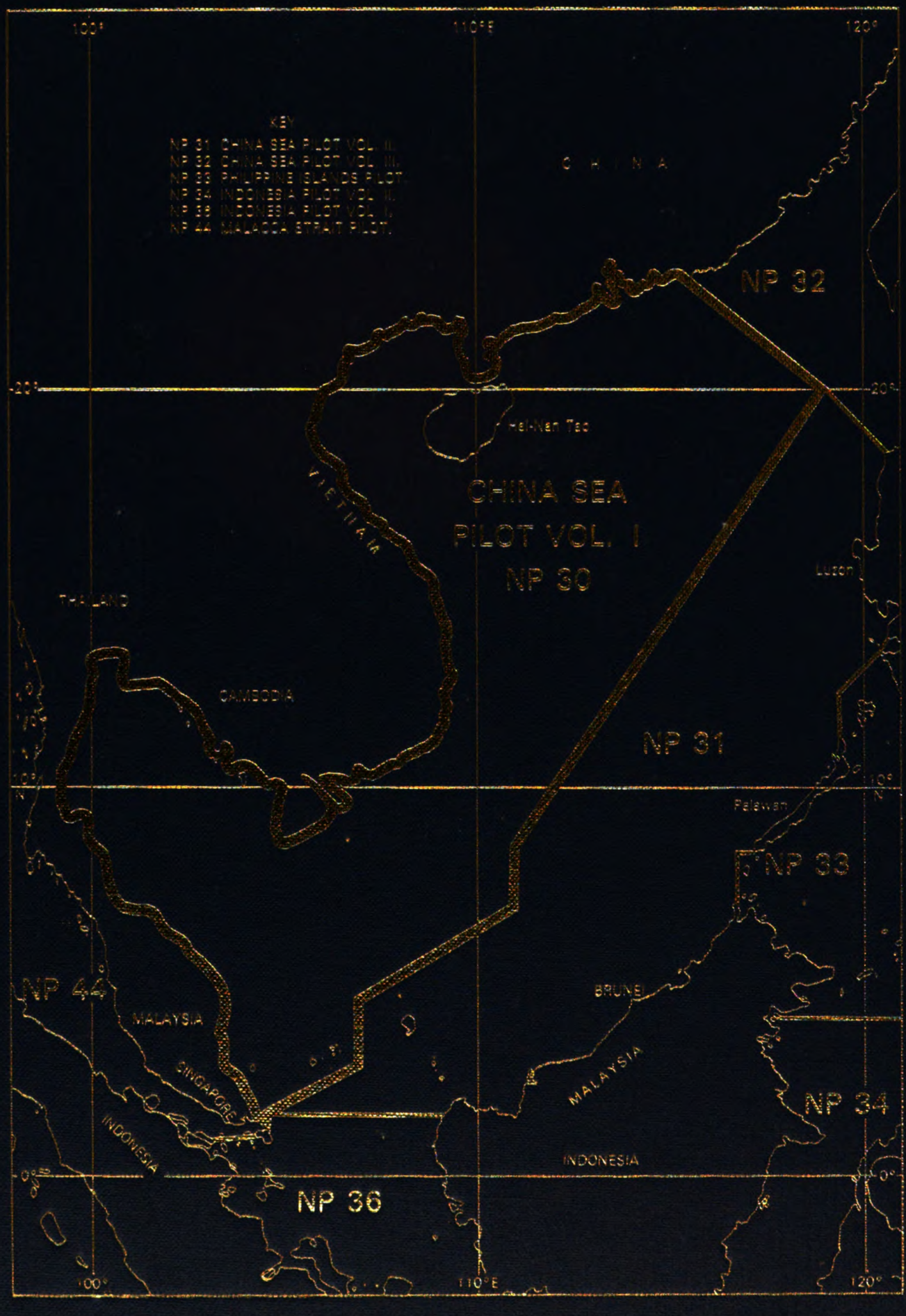
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